

COOPERATIVE NATIONAL PARK RESOURCES STUDIES UNIT
UNIVERSITY OF HAWAII AT MANOA
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SUPPLEMENT
to Technical Report 25
Haleakala National Park Crater District
Resources Basic Inventory: Mosses
SPECIES DISTRIBUTION MAPS LISTED IN APPENDIX 2

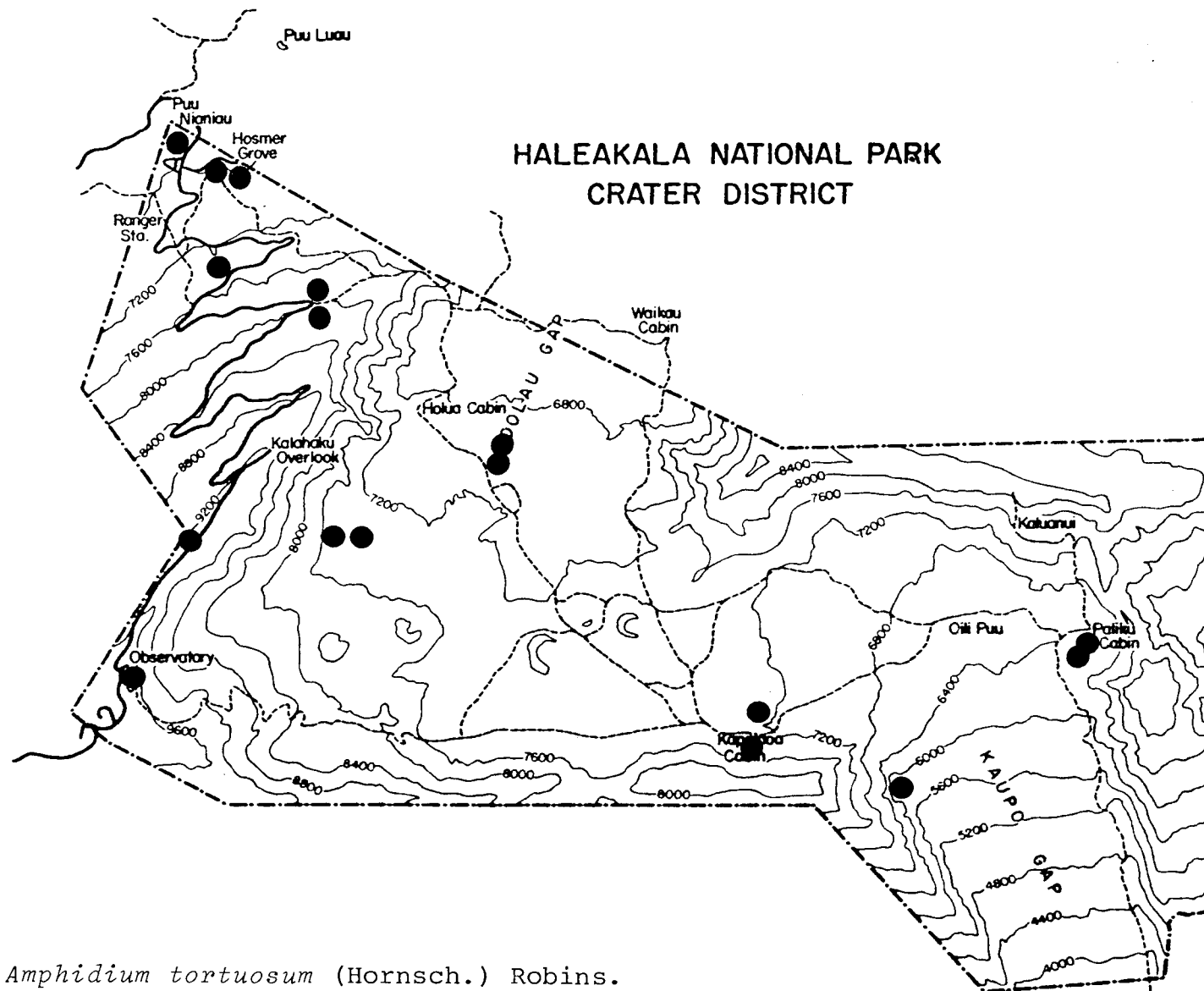
June 1979

UNIVERSITY OF HAWAII AT MANOA
NATIONAL PARK SERVICE: Contract No. CX 8000 7 0003
Contribution Number CPSU/UH 011/14Sup.
Supplement--Limited Distribution

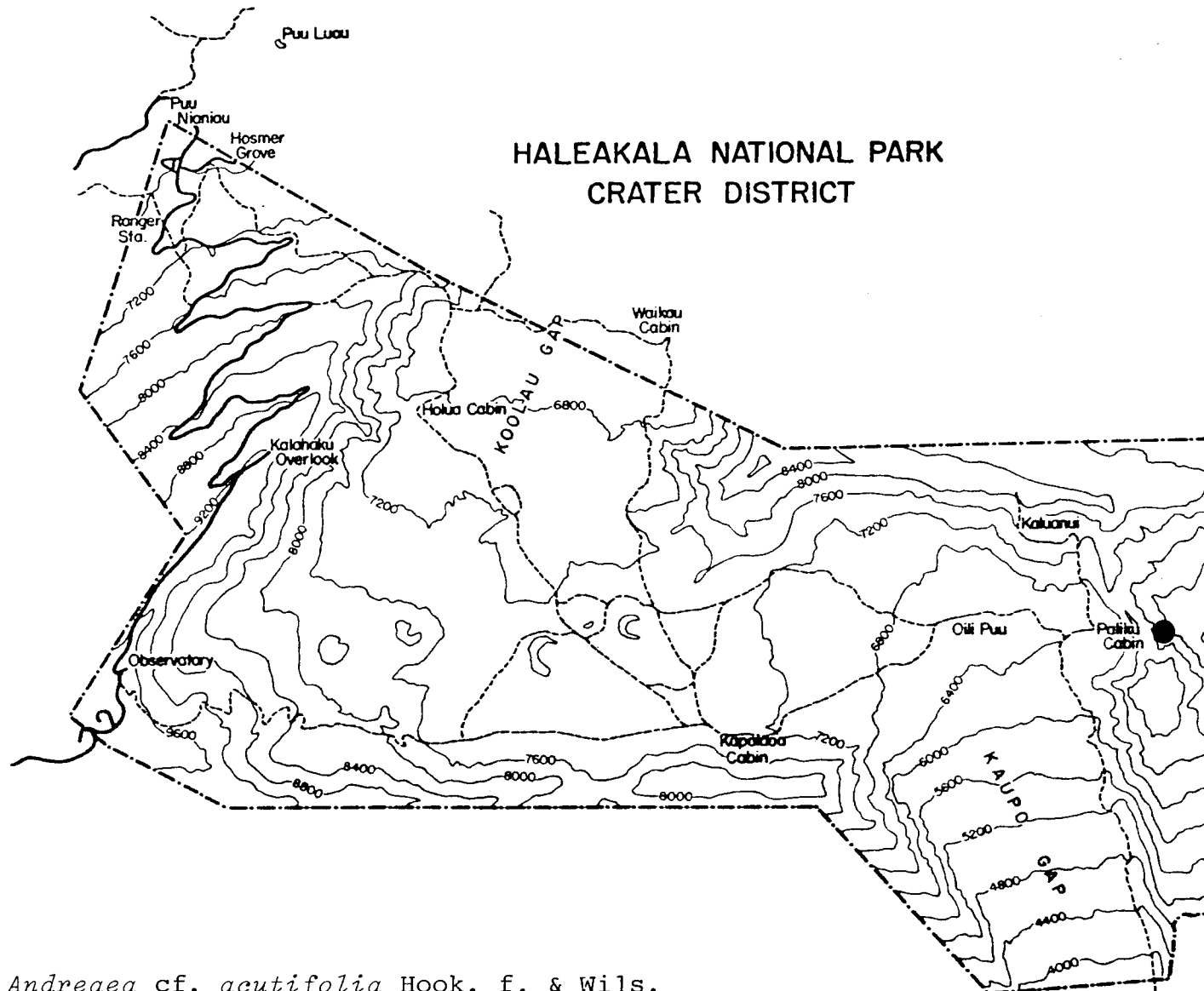
A detailed topographic map of the Haleakala National Park Crater District. The map shows the rugged terrain of Haleakala, with numerous contour lines indicating elevation. Key features include:

- Geographic Labels:** Koolau, Kaupo, and Haleakala are labeled across the map.
- Landmarks and Facilities:**
 - Kalahoku Overlook:** Marked with a solid black circle.
 - Observatory:** Located on the eastern slope.
 - Cabins:** Waikau Cabin, Pololu Cabin, and Kapaemahu Cabin are indicated.
 - Trails:** Several trails are shown as dashed lines, including the Koolau Trail and the Kaupo Trail.
 - Other Points of Interest:** Puu Nani, Hosmer Grove, Ranger Sta., and Puu Luau are labeled.
- Elevation:** Contour lines are labeled with elevations such as 6000, 7000, 8000, 9000, and 10000 feet.

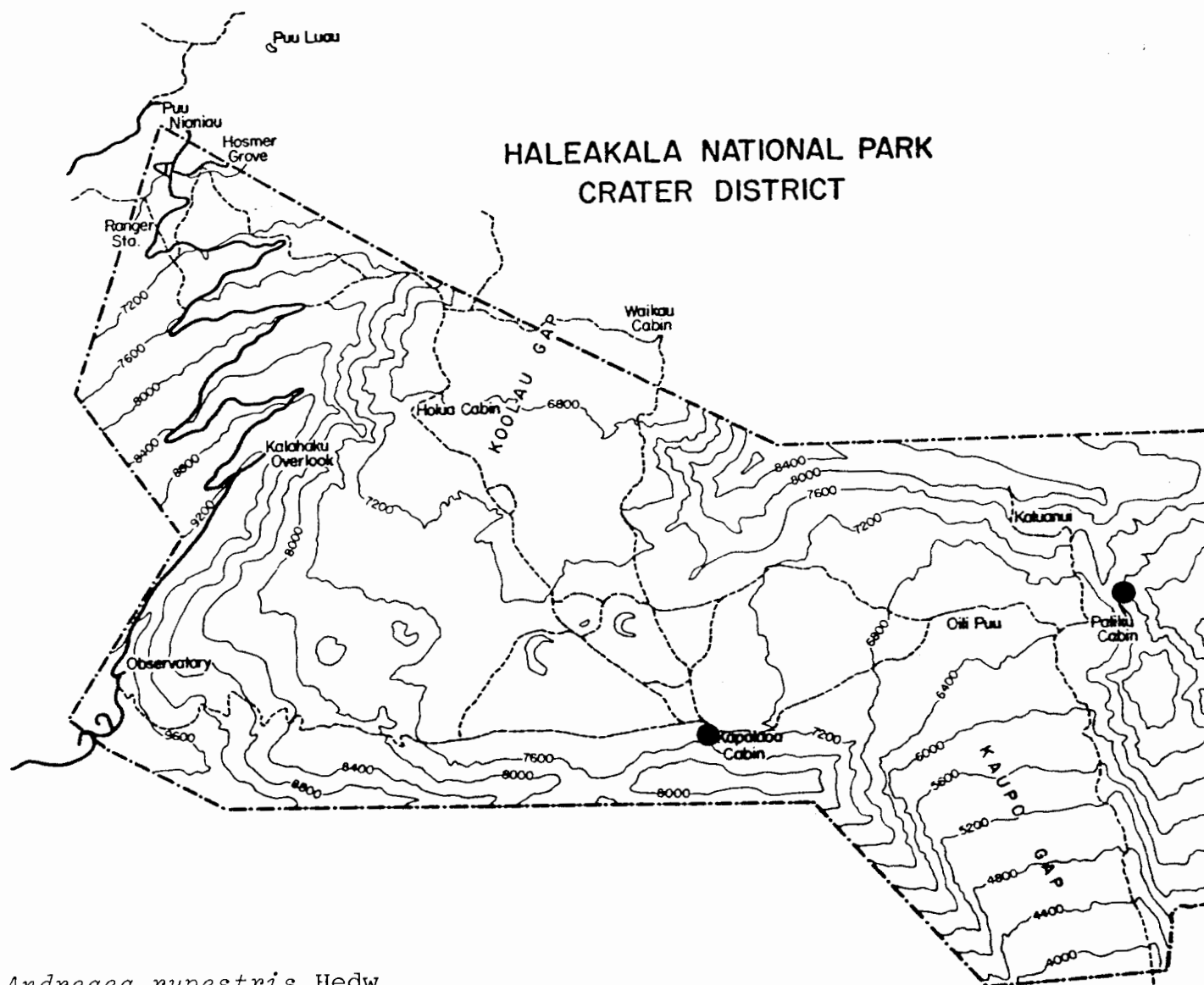
Amphidium lapponicum (Hedw.) Schimp.



Amphidium tortuosum (Hornsch.) Robins.



Andreaea cf. *acutifolia* Hook. f. & Wils.



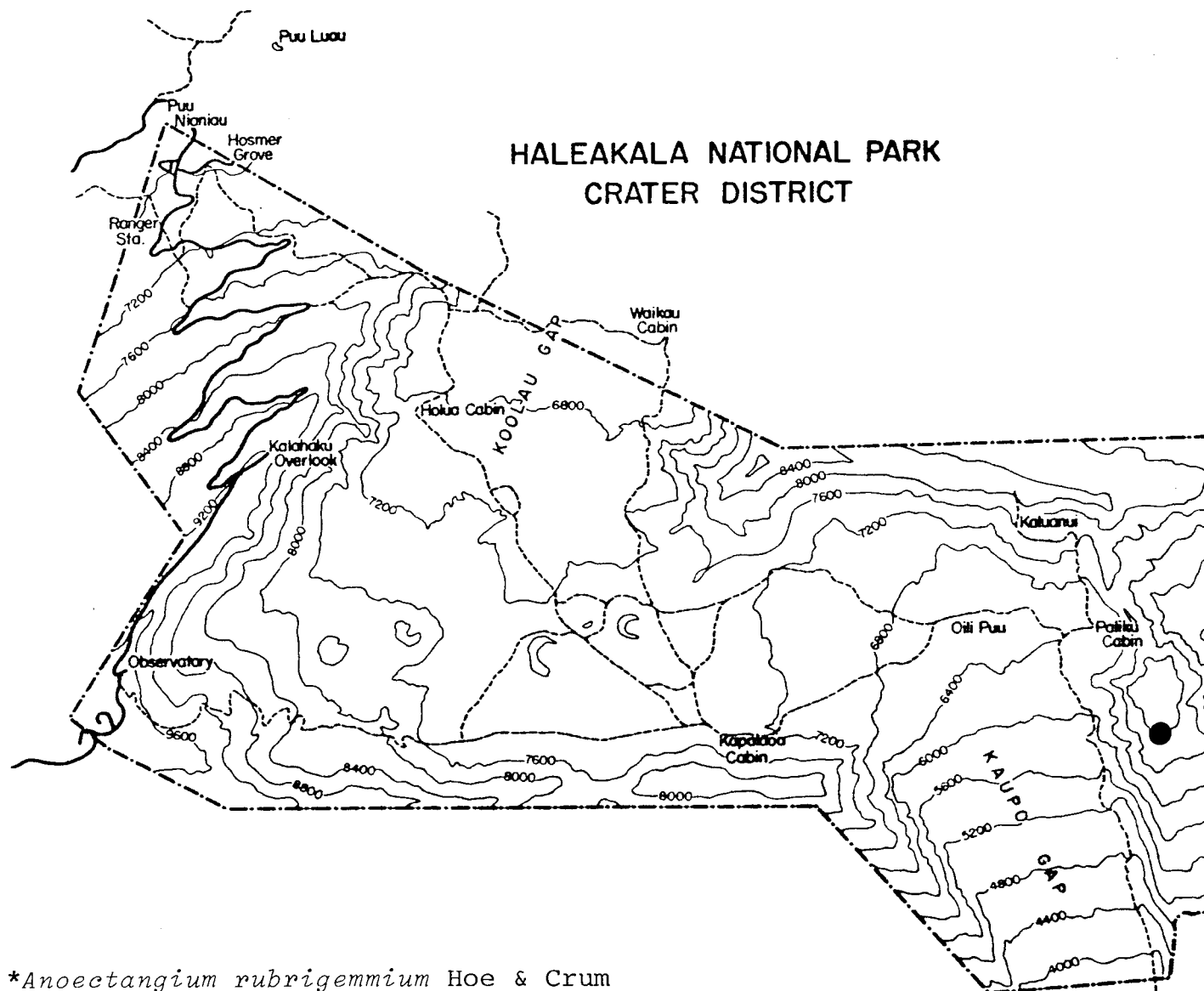
Andreaea rupestris Hedw.

[illegible]

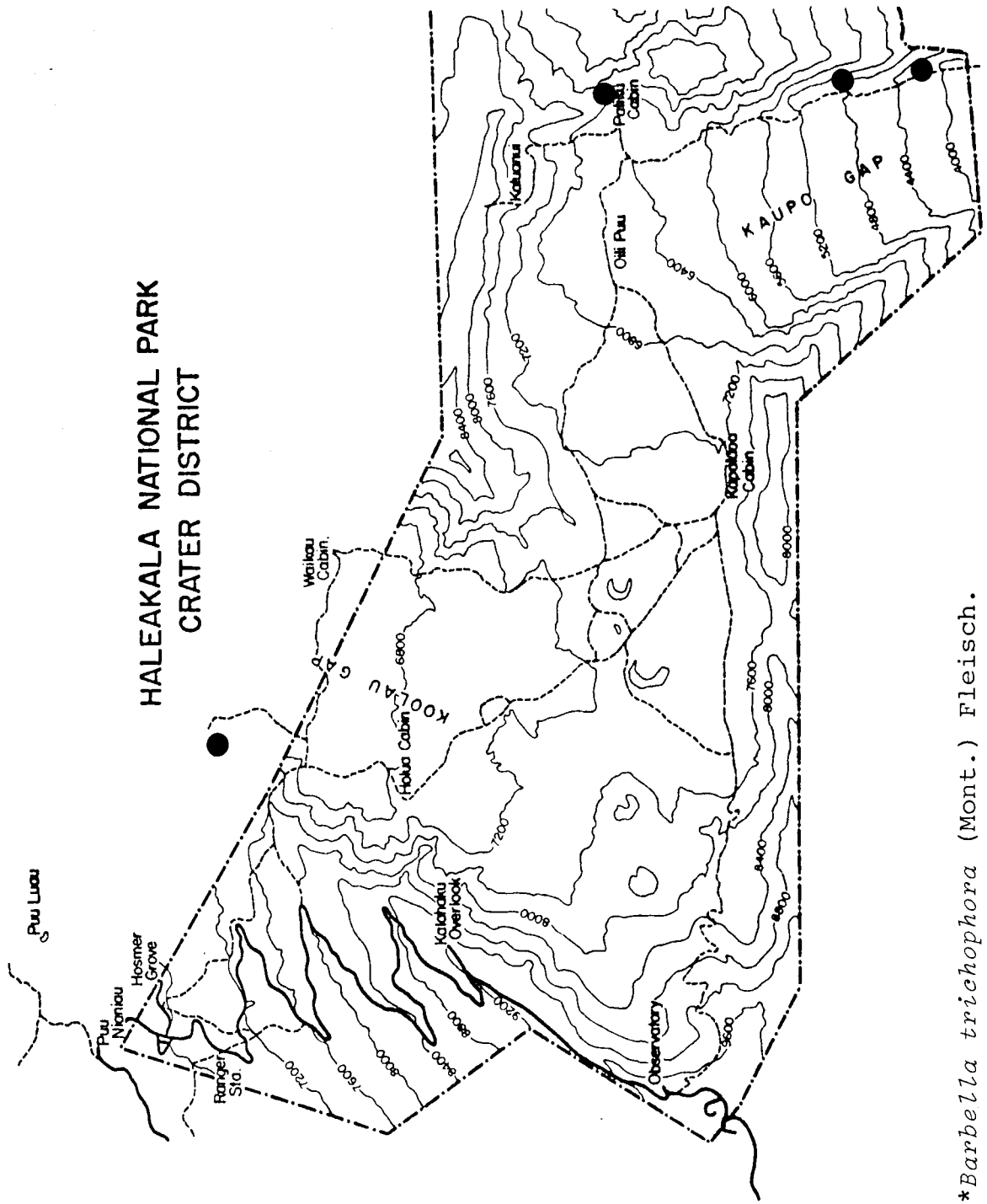
Anoetangium aestivum (Hedw.) Mitt.

Map of Haleakala National Park Crater District showing sampling sites for *Anoeetangium haleakalae*. The map includes contour lines, peaks like Puu Luau, and locations such as Koolau, Kaula, and Kaupo. Sampling sites are marked with black dots. A scale bar indicates 0 to 10 miles.

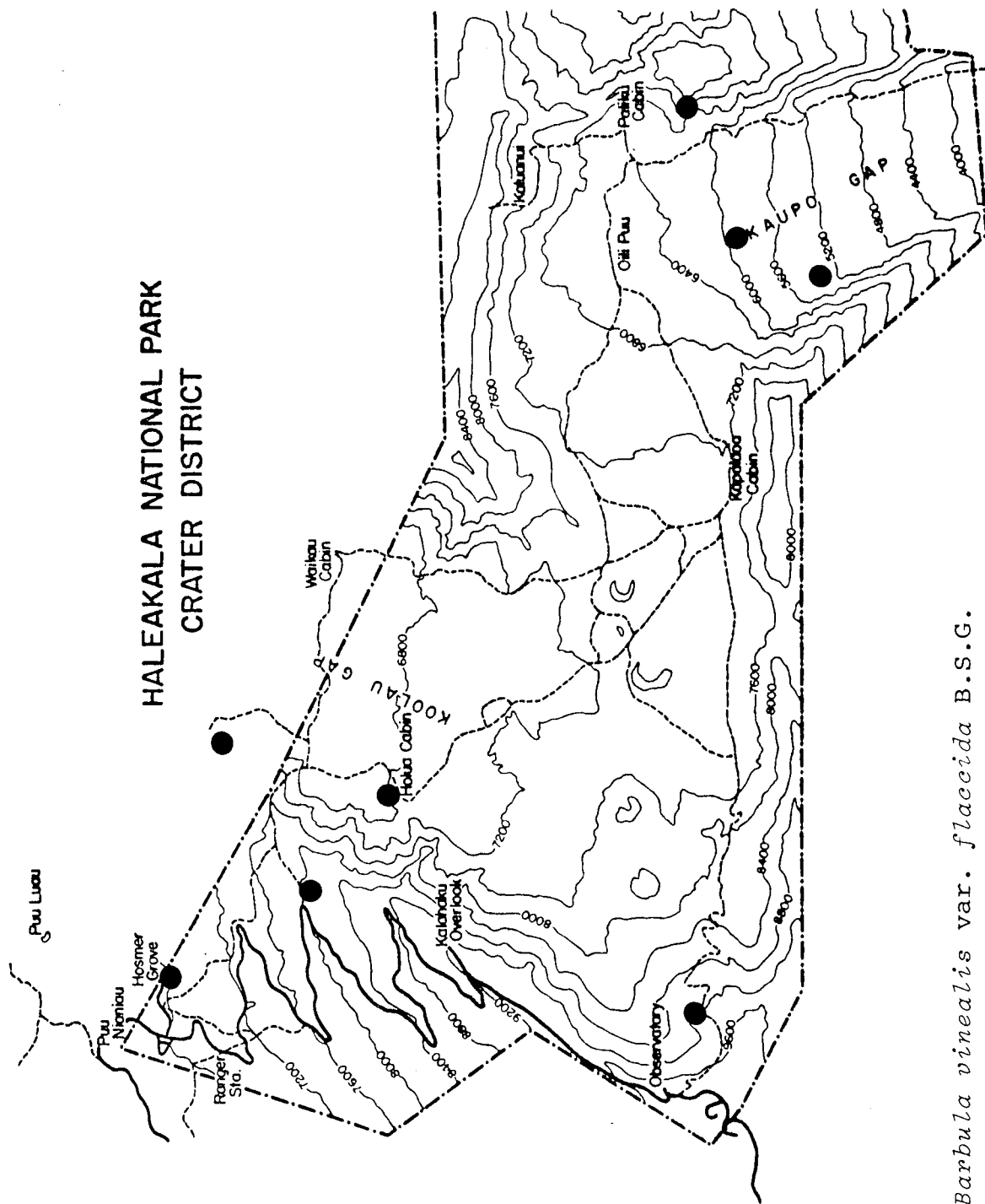
**Anoetangium haleakalae* (C. Muell.) Par.



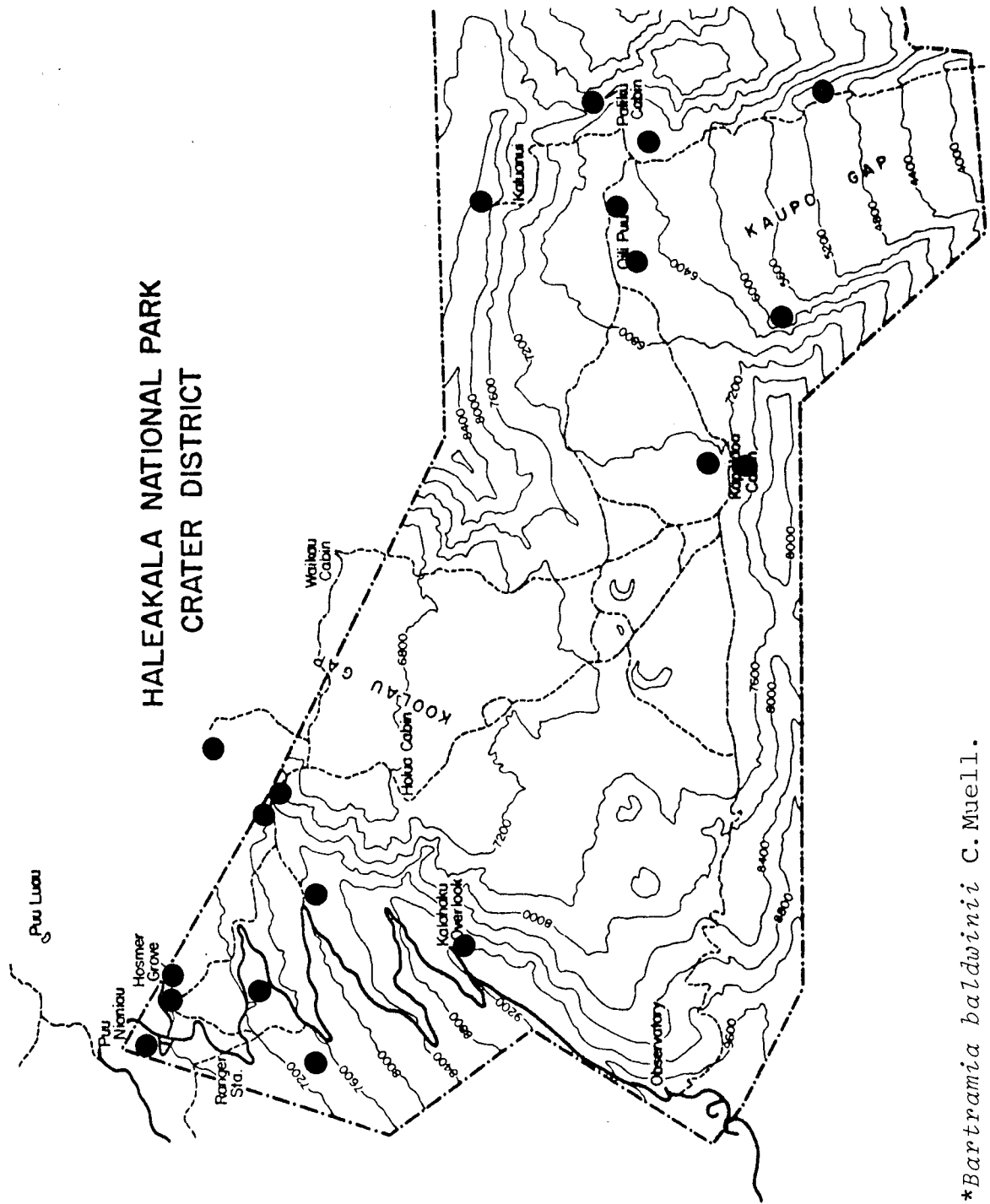
**Anoectangium rubrigemmium* Hoe & Crum



**Barbella trichophora* (Mont.) Fleisch.



Barbula vinealis var. *flaccida* B.S.G.



**Bartramia baldwinii* C. Muell.

[illegible]

Bartramia halleriana Hedw.

The map illustrates the Haleakala National Park Crater District. Key locations include Puu Luau at the bottom left, Puu Nianiau, Hosmer Grove, Ranger Sta., Kalamia Overlook, Waikou Cabin, Kahuna Cabin, Ohi Pui, Kapulu Cabin, and an Observatory. Topographic contour lines are shown with elevations such as 7000, 8000, 9000, and 10000 feet. A dashed line indicates a boundary or trail route. Three specific collection sites for *Brachythecium hawaiiicum* Bartr. are marked with black dots: one near Kahuna Cabin, one near Ohi Pui, and one near the Observatory.

**Brachythecium hawaiiicum* Bartr.

A topographic map of the Haleakala National Park Crater District. The map shows contour lines at various elevations (e.g., 7000, 8000, 9000 feet). Several locations are marked with black dots, representing sampling sites for *Brachythecium lamprocarpum*. These sites are labeled as follows:

- Puu Nihiiau
- Hosmer Grove
- Ranger Sta.
- Kalahau Overlook
- Holua Cabin
- Waikou Cabin
- Kalanianaʻohi
- Oli Puu
- Paliu Cabin
- Aupo
- Kapoho Cabin
- Observatory

The map also includes labels for geographical features such as "Puu Luau" and "G.A.". A scale bar is present in the bottom right corner.

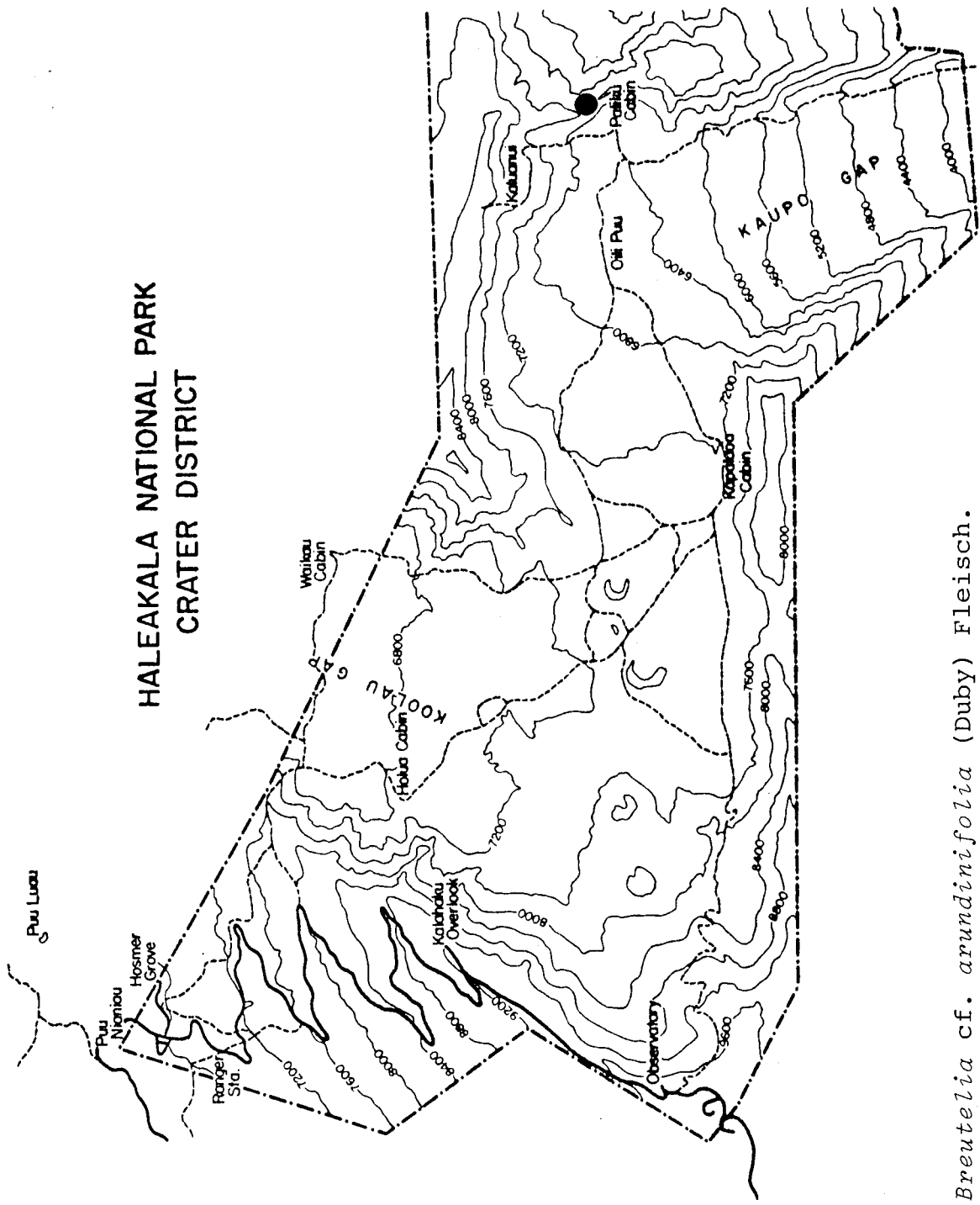
Brachythecium lamprocarpum (C. Muell.) Jaeg.

[illegible]

Brachythecium plumosum (Hedw.) B.S.G.

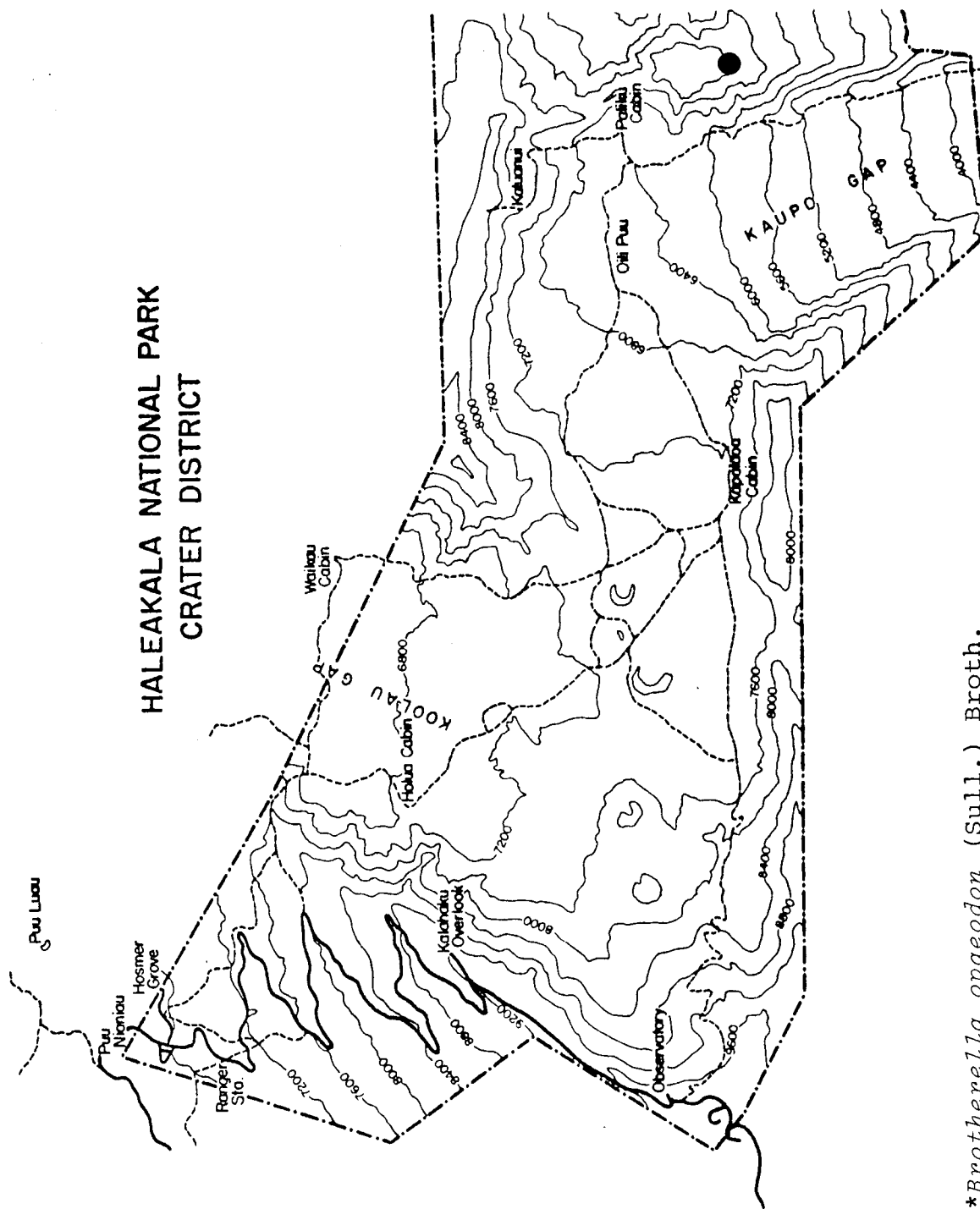
[illegible]

Brachythecium rutabulum (Hedw.) B.S.G.

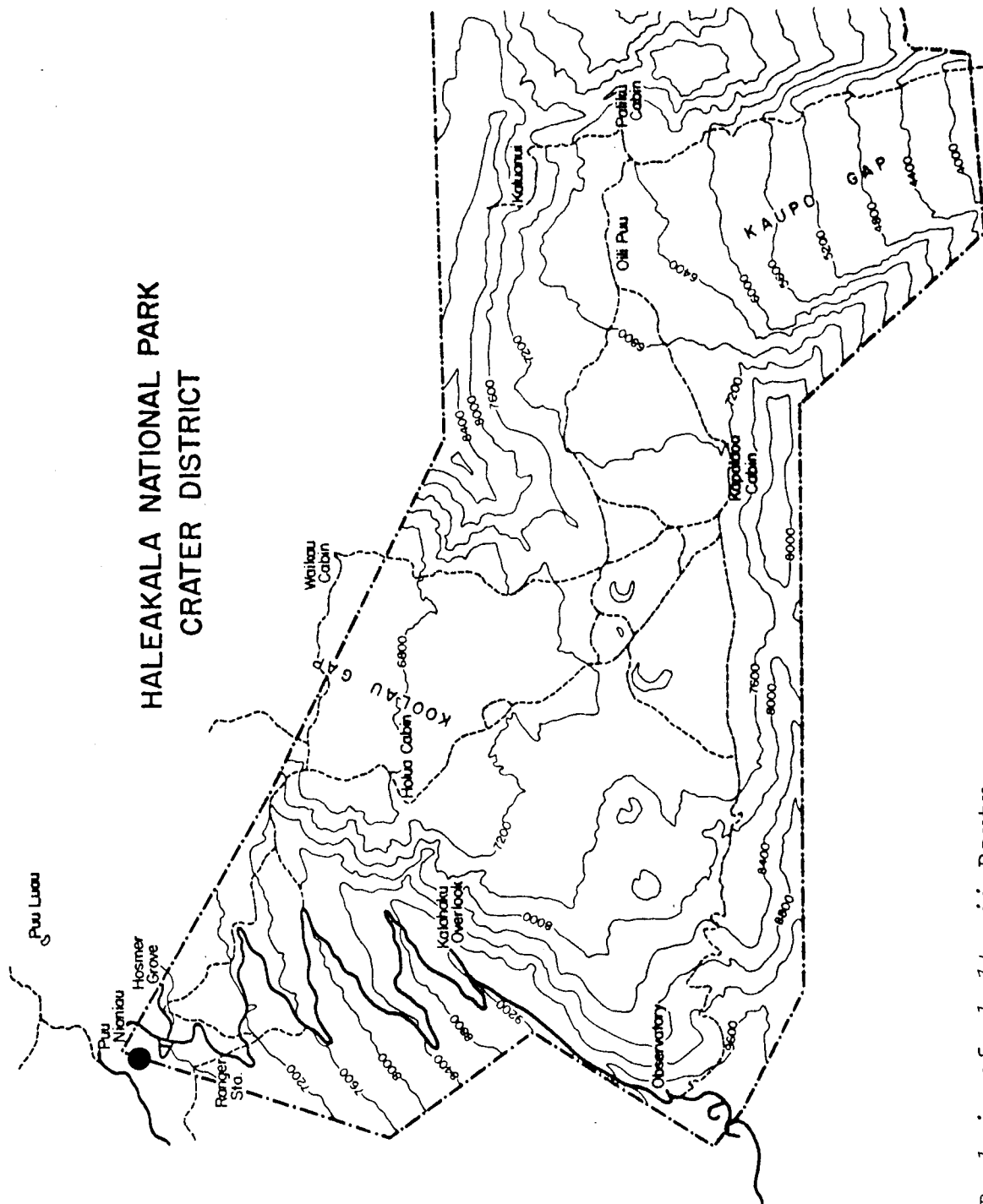


HALEAKALA NATIONAL PARK CRATER DISTRICT

Breutelia cf. *arundinifolia* (Duby) Fleisch.



**Brotherella opaeodon* (Sull.) Broth.

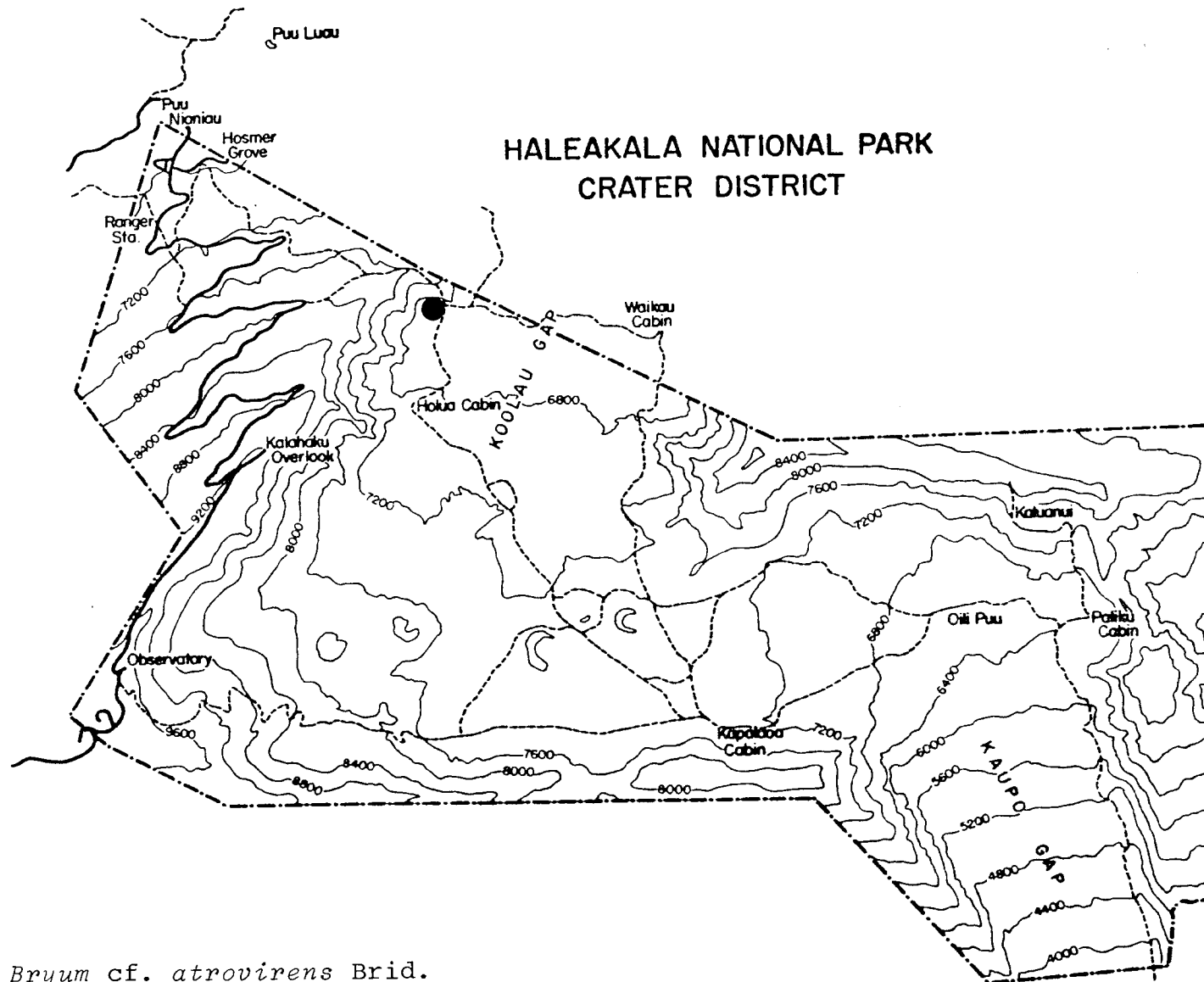


Bryhnia cf. hultenii Bartr.

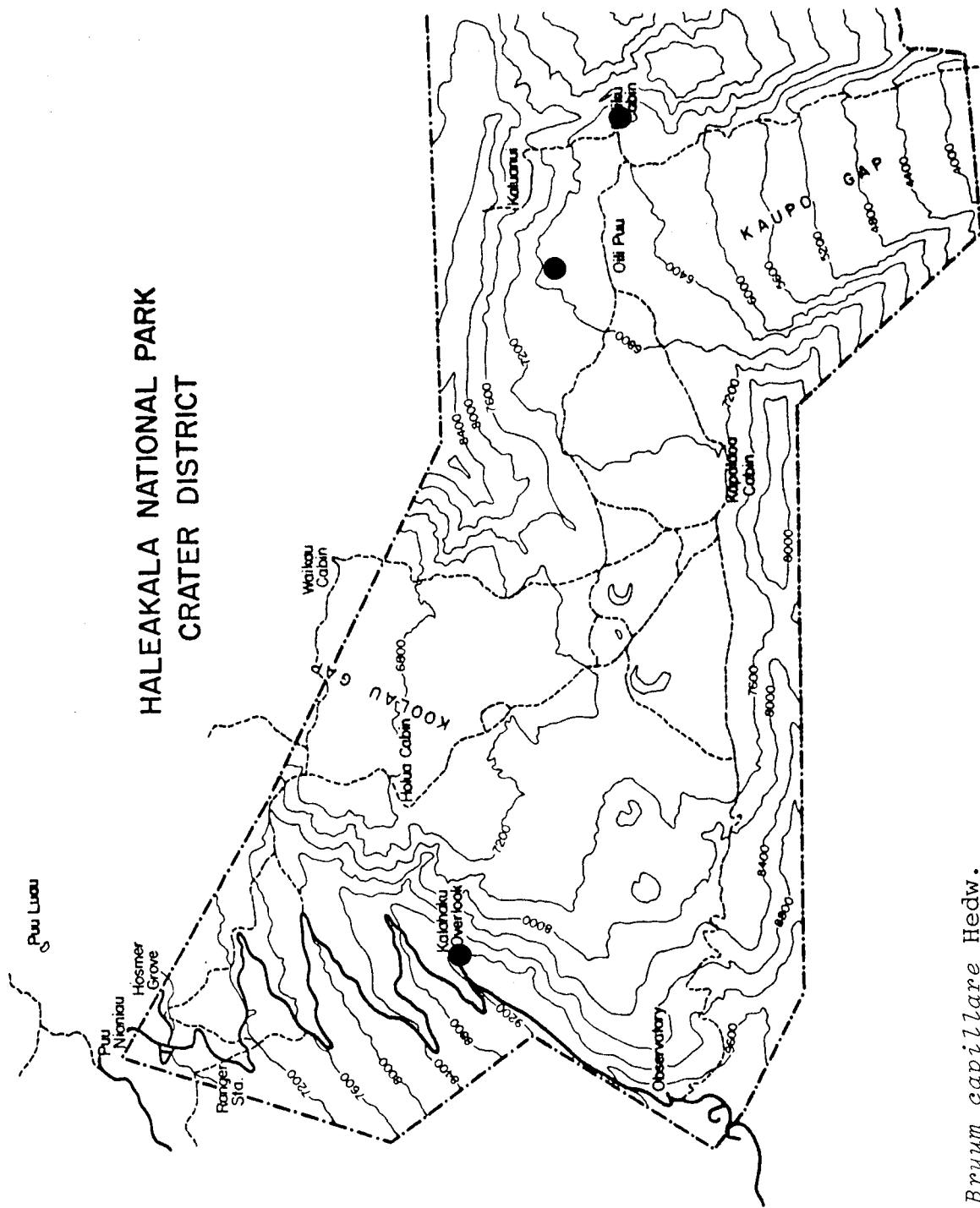
A detailed topographic map of the Haleakala National Park Crater District. The map shows the rugged terrain of Haleakala, with numerous contour lines indicating elevations ranging from 5000 to 9200 feet. Key features include the Puu Niau, Hosmer Grove, Ranger Sta., Kalahaku Overlook, Koolau Gap, Waikou Cabin, Hokua Cabin, Observatory, Kapiolaka Cabin, Oti Puu, Kahanui, and the T. A. U. P. (Tahiti A. U. P.). The map also shows the location of several collection sites for *Bryum argenteum*, marked by black dots. The map is titled "HALEAKALA NATIONAL PARK CRATER DISTRICT" in the upper right corner.

Bryum argenteum Hedw.

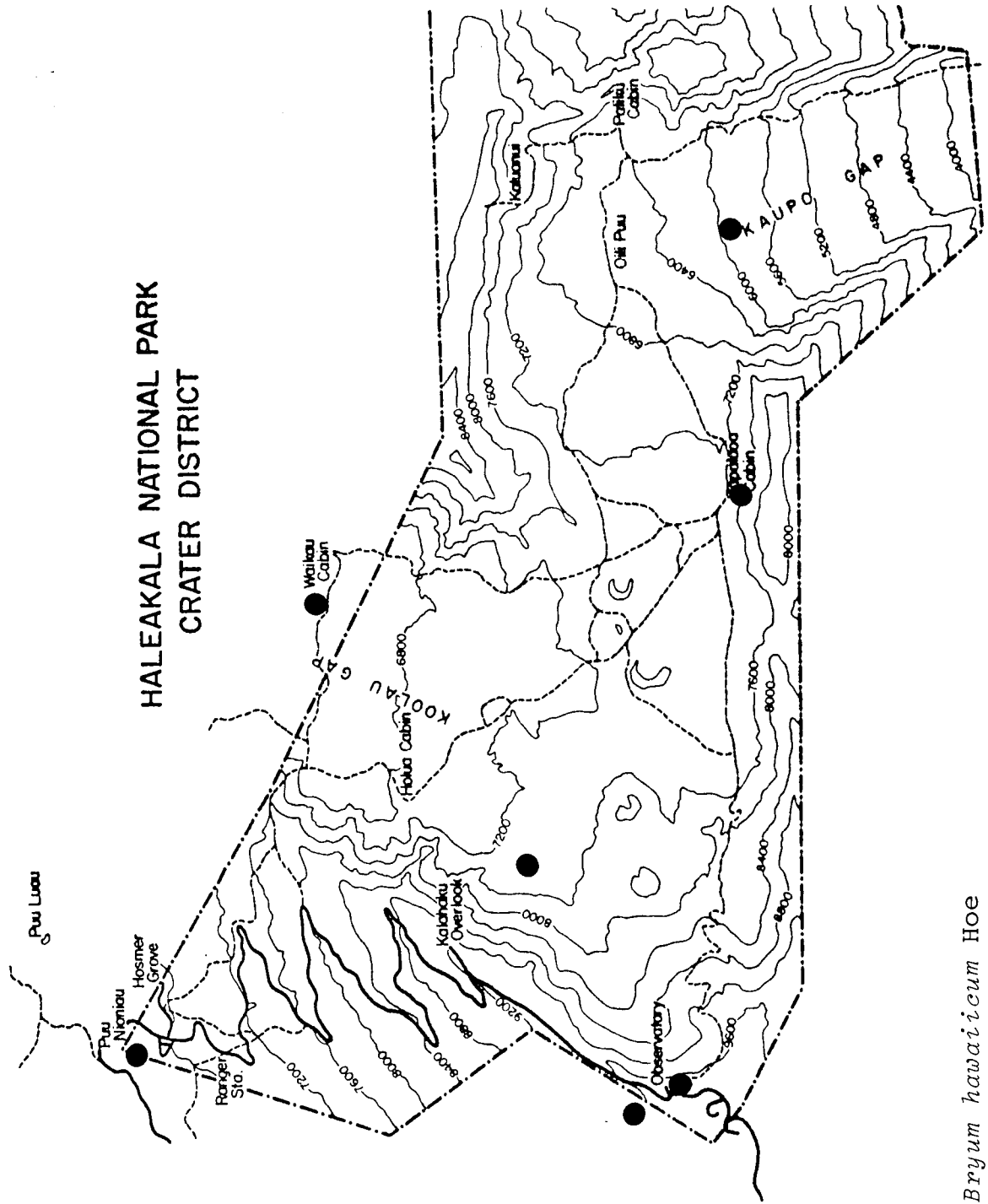
Bryum argenteum Hedw.



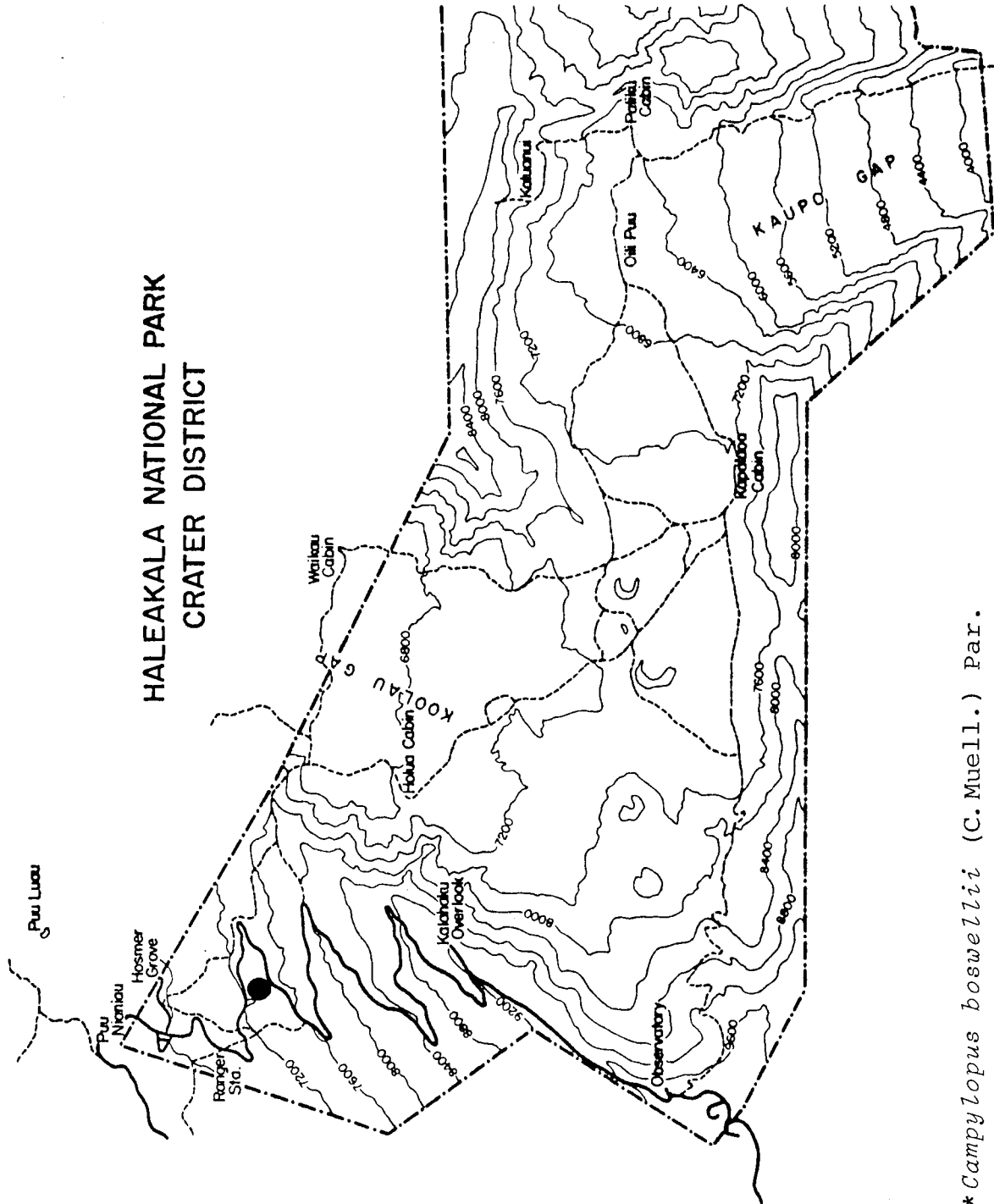
Bryum cf. atrovirens Brid.



Bryum capillare Hedw.

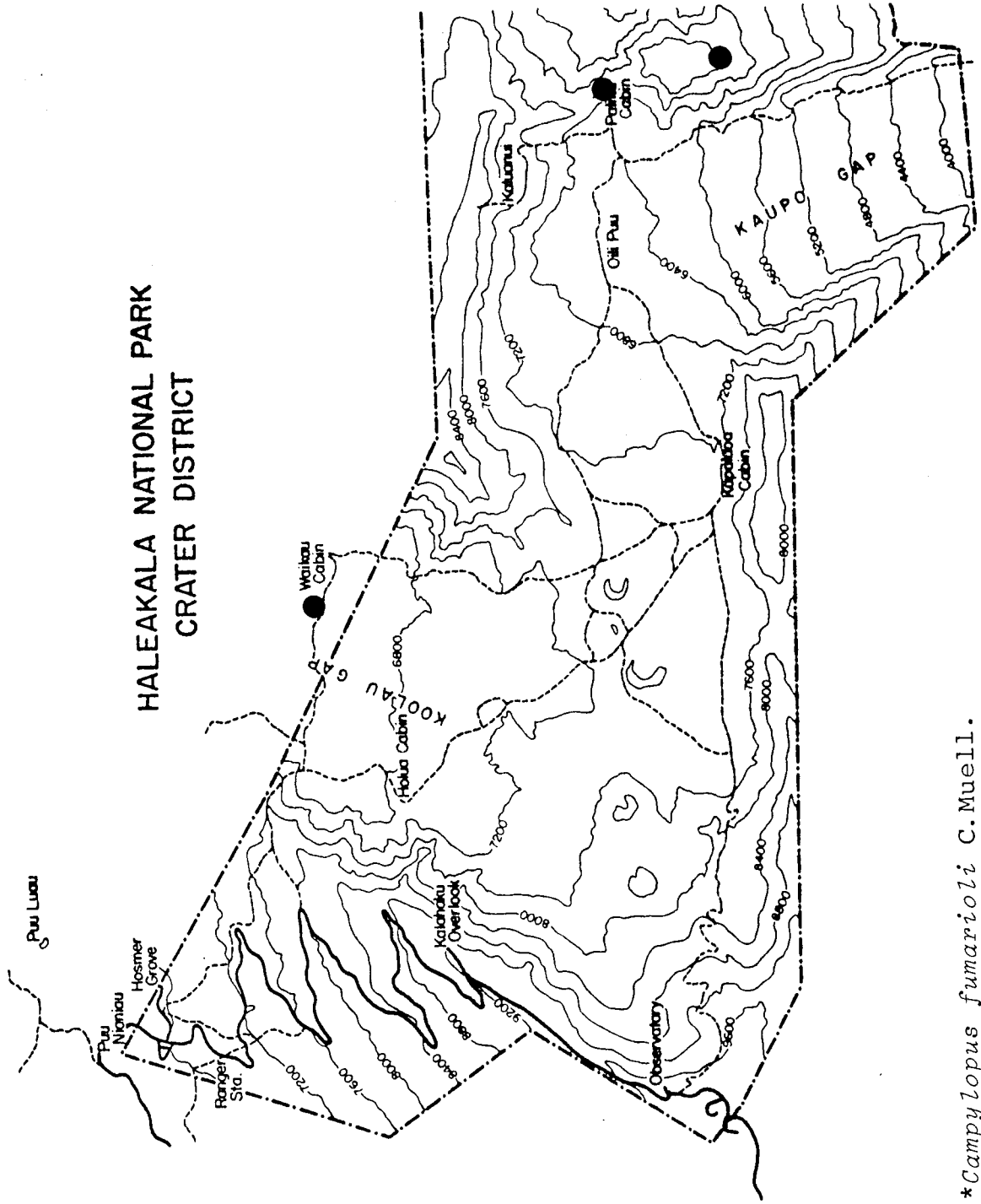


**Bryum hawaiiicum* Hoe

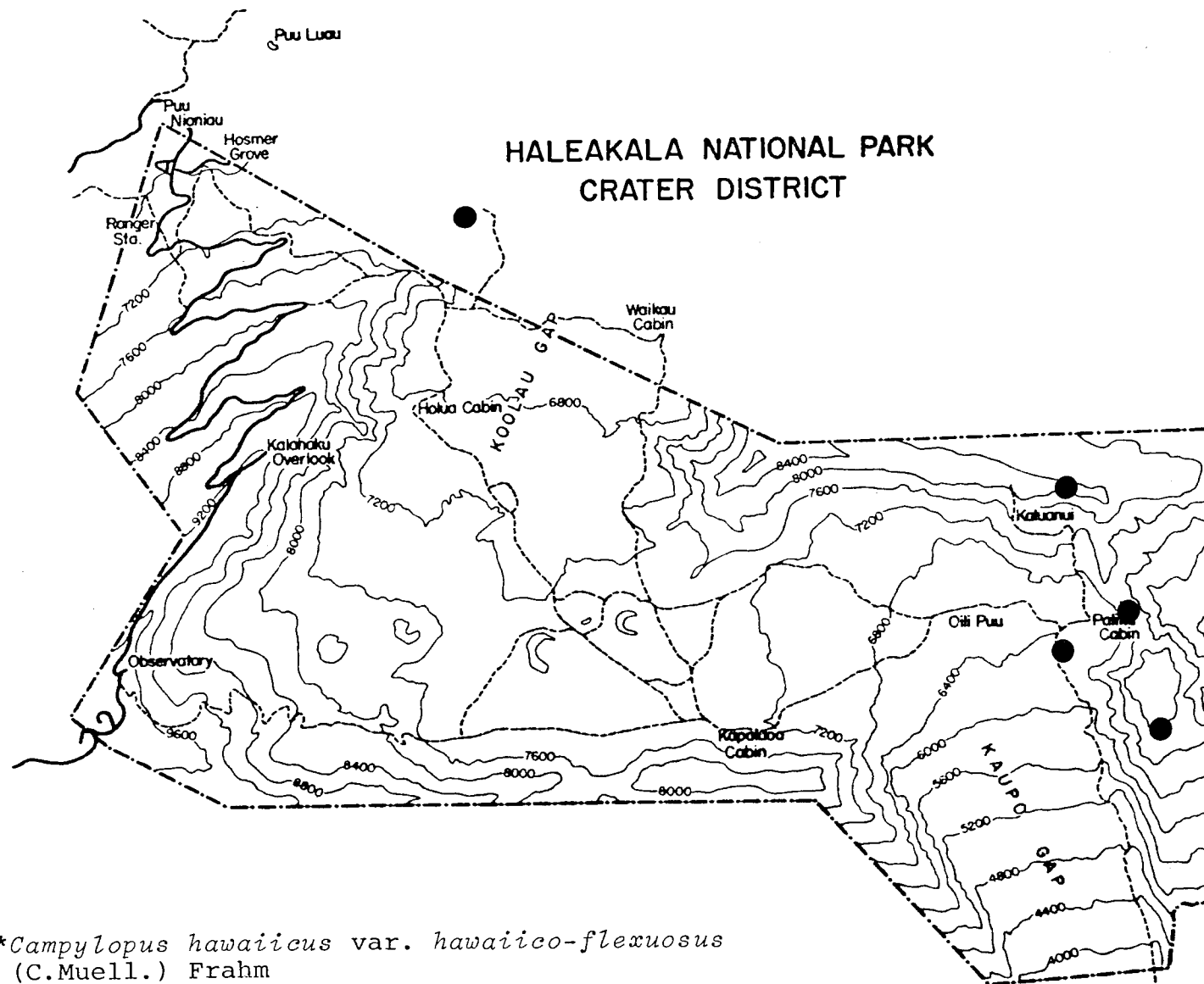


HALEAKALA NATIONAL PARK CRATER DISTRICT

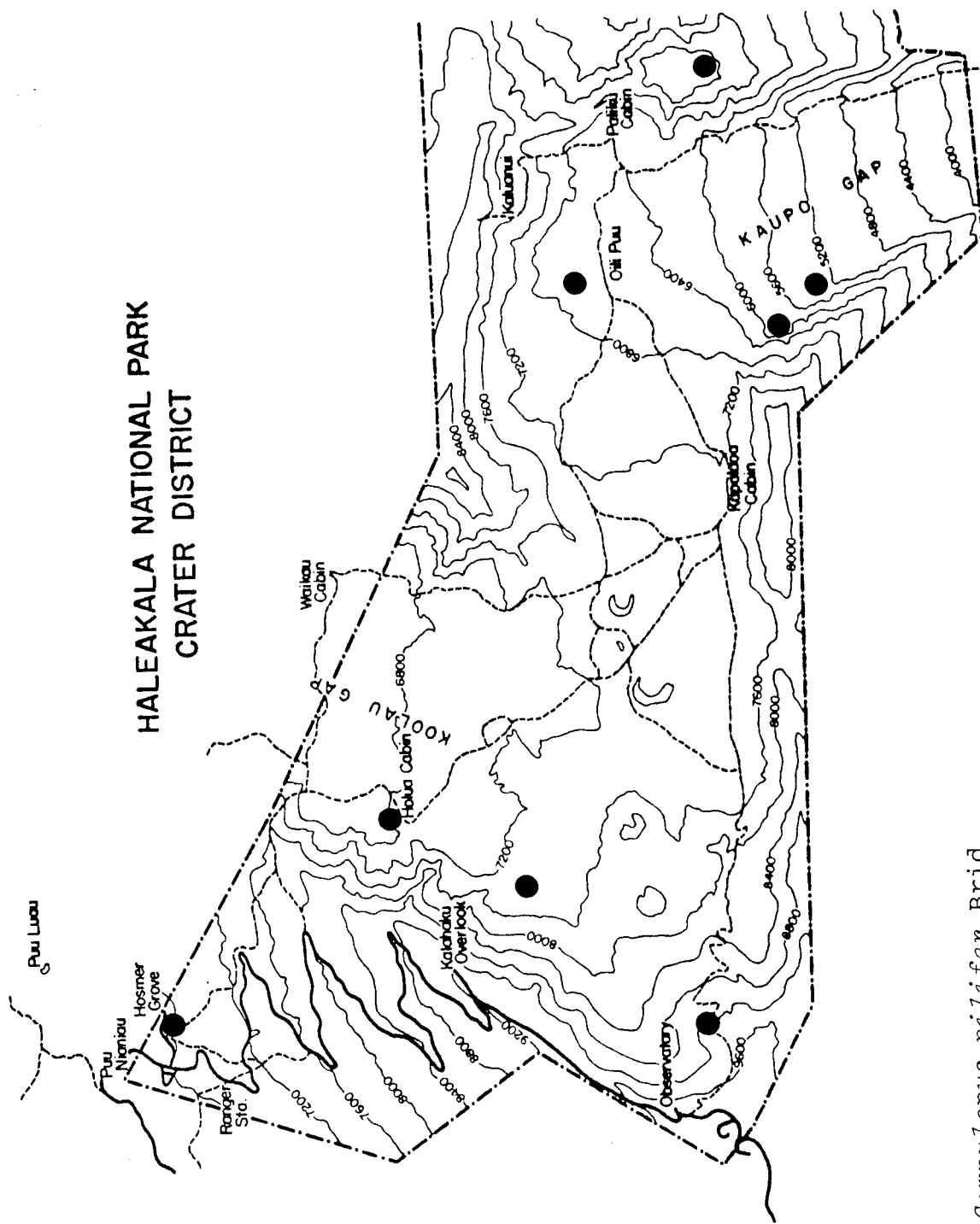
**Campylopus boswellii* (C. Muell.) Par.



**Campylopus fumarioli* C. Muell.

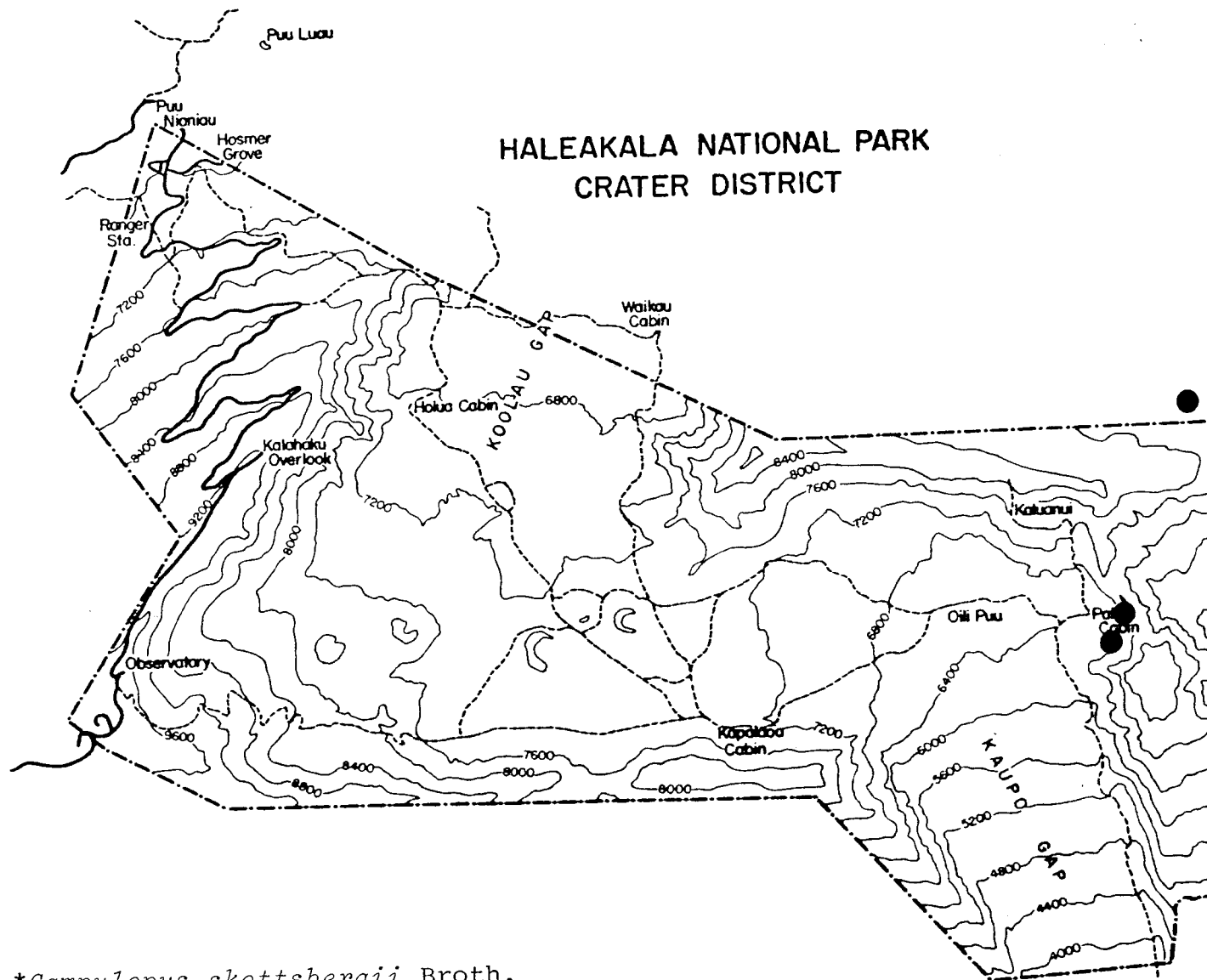


**Campylopus hawaiiicus* var. *hawaiiico-flexuosus*
(C. Muell.) Frahm

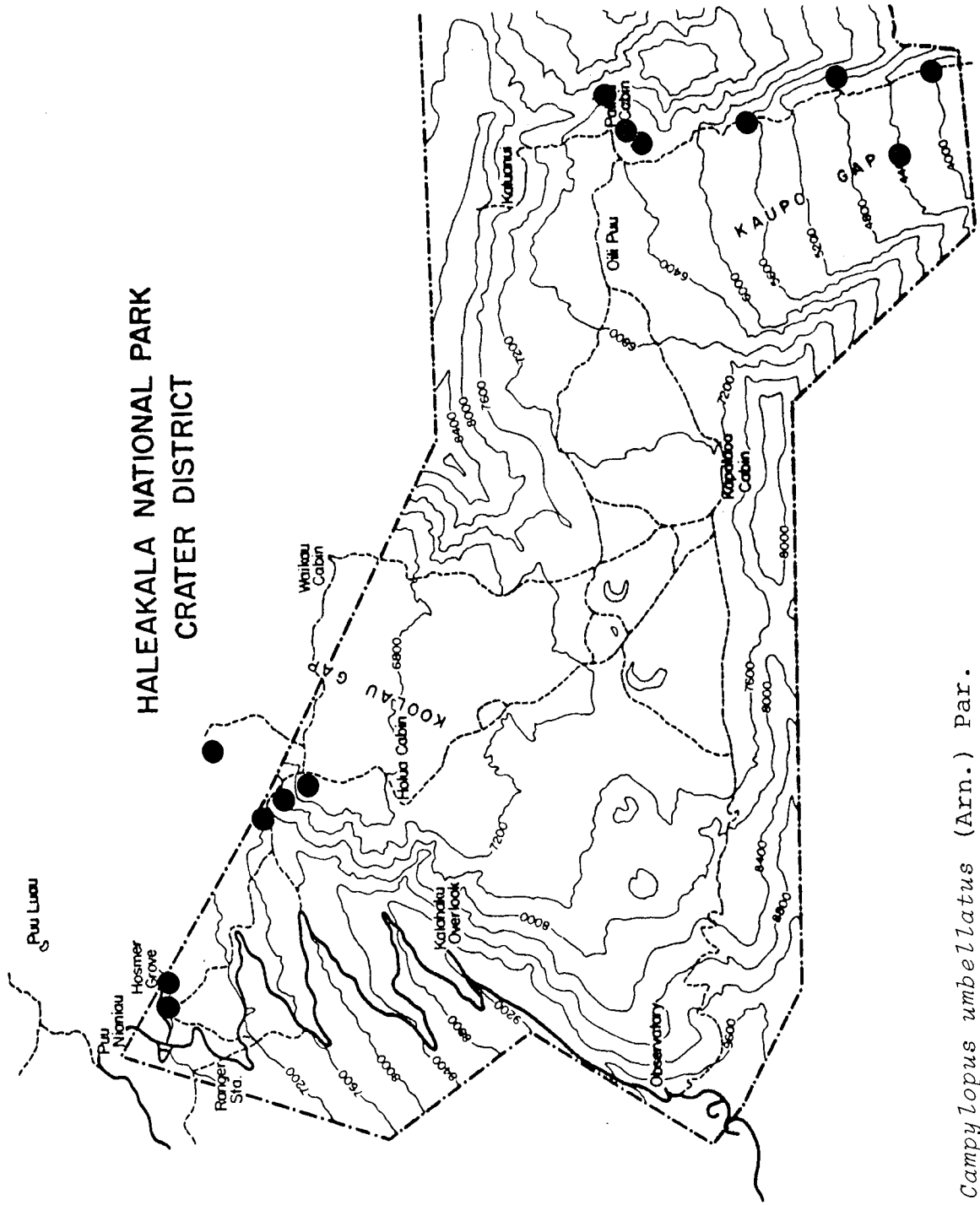


HALEAKALA NATIONAL PARK CRATER DISTRICT

Campylopus pilifer Brid.



**Campylopus skottsbergii* Broth.



Campylopus umbellatus (Arn.) Par.

**HALEAKALA NATIONAL PARK
CRATER DISTRICT**

Map showing the distribution of *Ceratodon purpureus* (Hedw.) Brid. in the Haleakala National Park Crater District. The map includes contour lines, a dashed boundary, and various labeled locations. Black dots indicate collection sites.

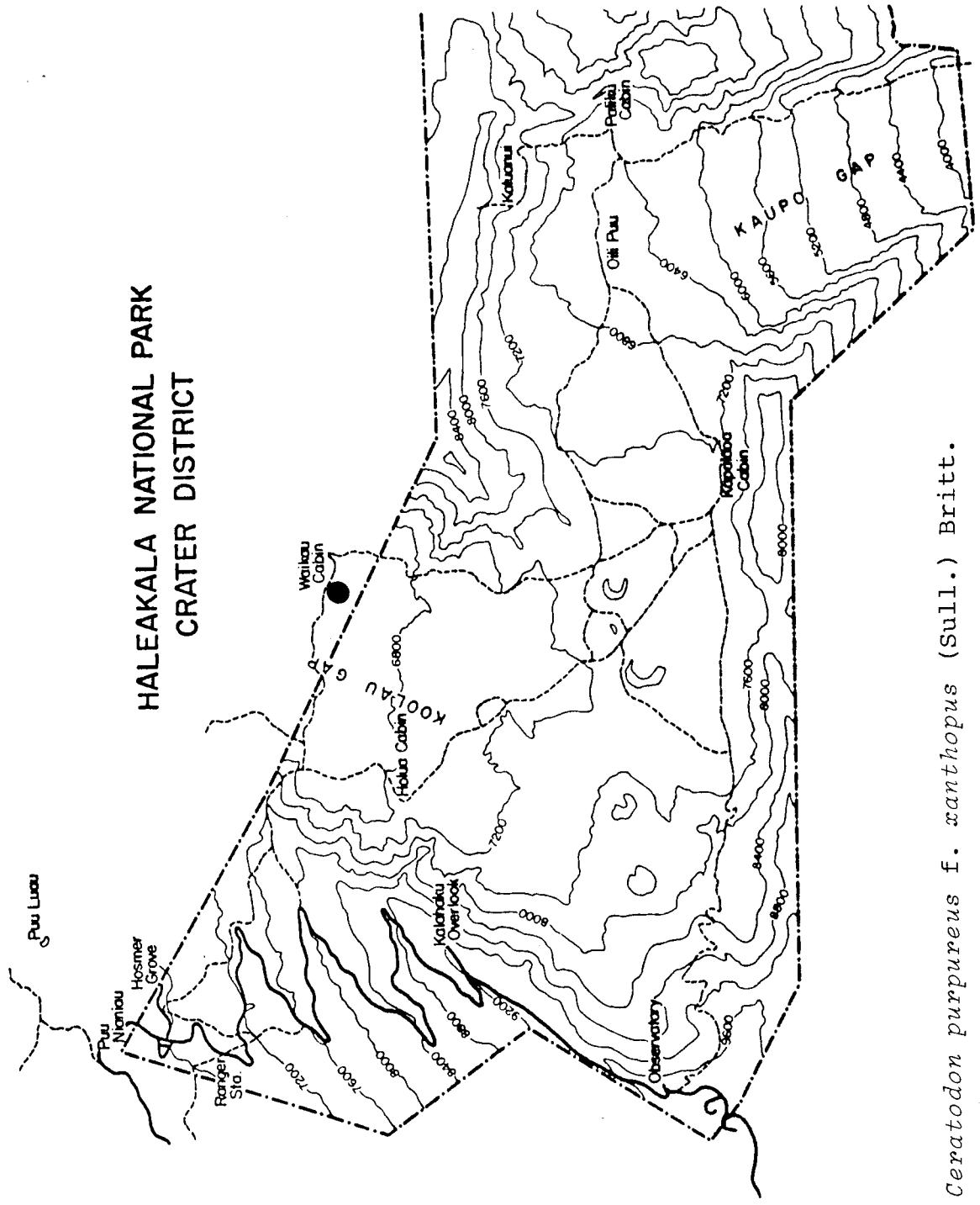
Key locations and features labeled on the map:

- Puu Luau
- Puu Nianiau
- Hosmer Grove
- Ranger Sta.
- Kalahau Overlook
- Holua Cabin
- Waikau Cabin
- Kalanianaʻolahi
- Off Puu
- Papaha Cabin
- Kaupohaka Cabin
- Observatory
- Kaupo
- G.A.P.

Contour lines are marked with elevations: 2000, 4000, 6000, 8000, 10000, 12000, 14000, 16000, 18000, 20000.

Scale: 0 1 2 3 4 5 6 7 8 9 10 Miles

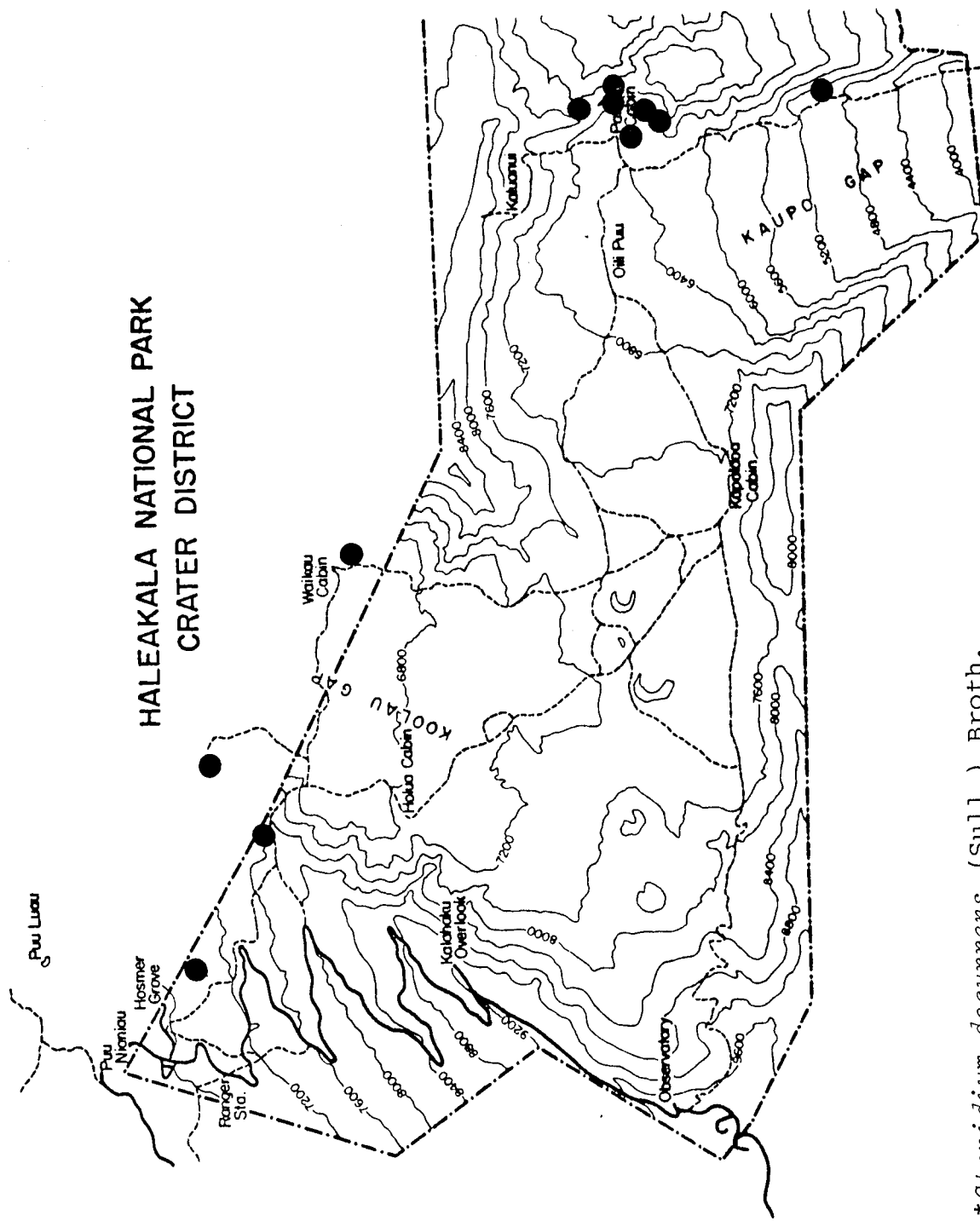
Ceratodon purpureus (Hedw.) Brid.



Ceratodon purpureus f. *xanthopus* (Sull.) Britt.

[illegible]

Clastobryopsis planula (Mitt.) Fleisch.

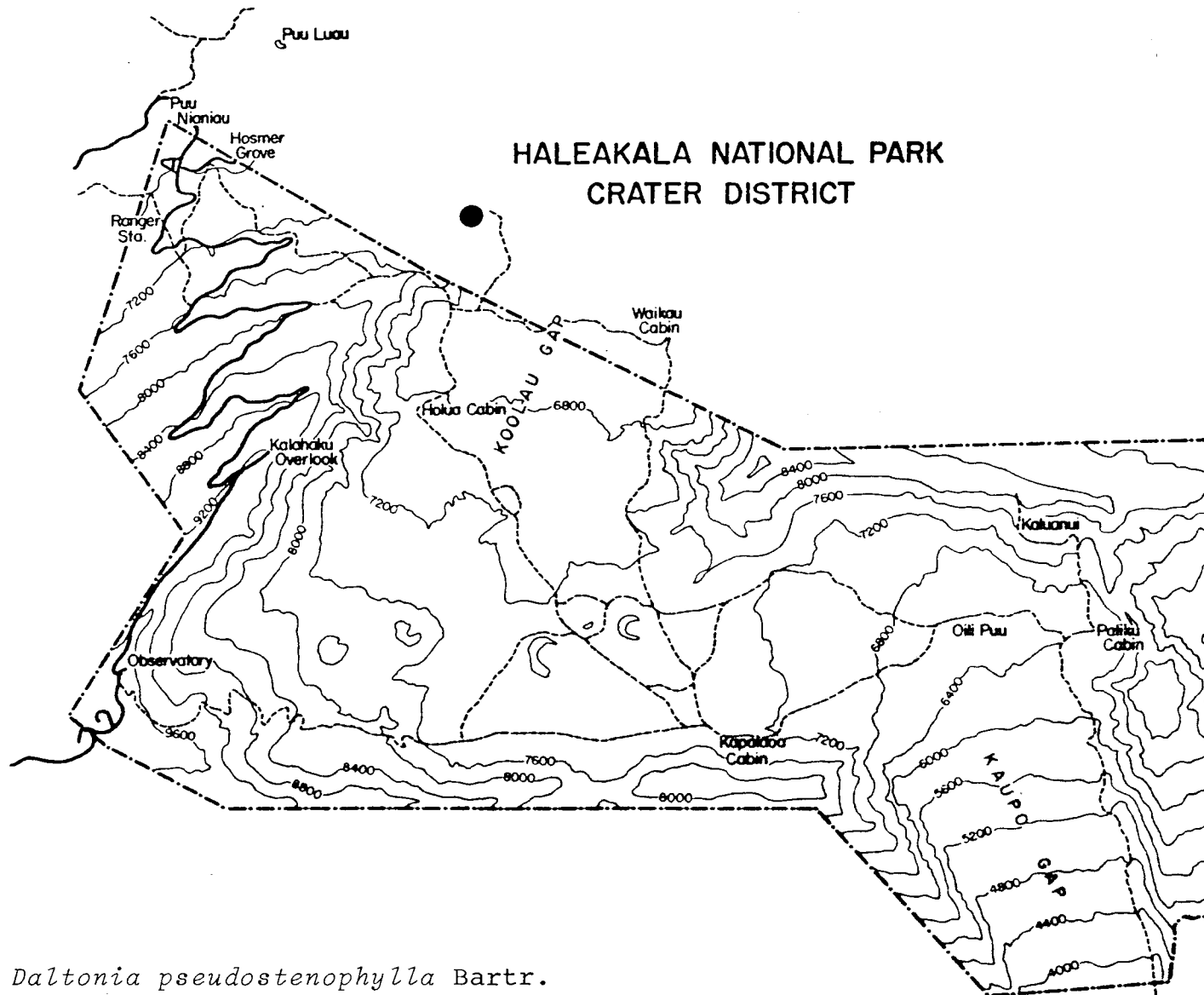


HALEAKALA NATIONAL PARK CRATER DISTRICT

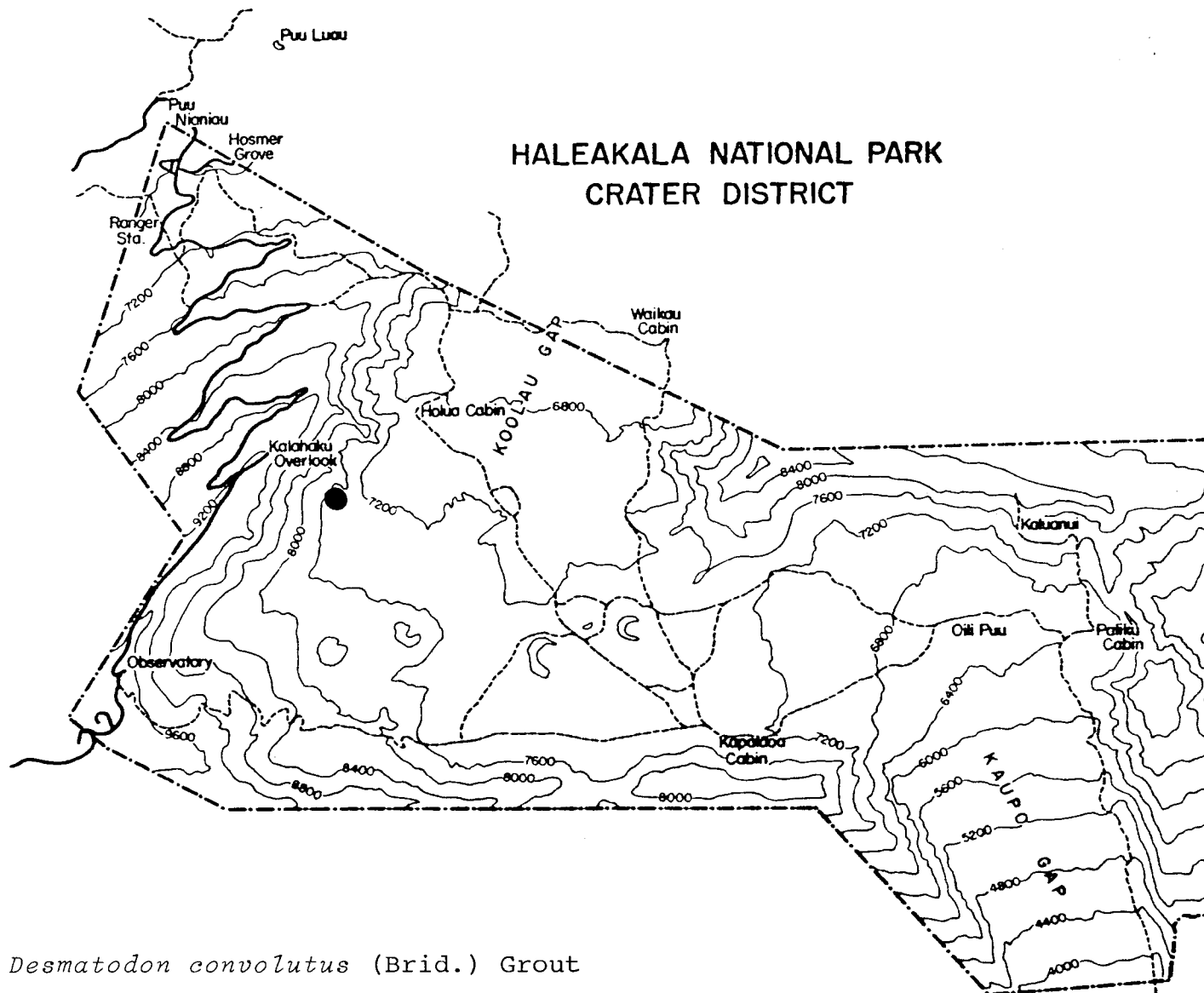
**Ctenidium decurrens* (Sull.) Broth.

A detailed topographic map of the Haleakala National Park Crater District. The map features contour lines indicating elevation, with labels such as 2000, 3000, 4000, 5000, 6000, 7000, 8000, and 9000 feet. Key geographical features include the Koolau and Kaupo ridges, and the central crater area. Several locations are marked with black dots, representing collection sites for *Daltonia contorta*. These sites are labeled: Puu Nani, Hosmer Grove, Ranger Sta., Kalanianaʻohu Overlook, Waikou Cabin, Koolau Cabin, Ohi Pua, Puu Pua, and Kapahulu Cabin. The map also shows the location of the Observatory. The title 'HALEAKALA NATIONAL PARK CRATER DISTRICT' is prominently displayed in the upper left. The map is oriented with North at the top.

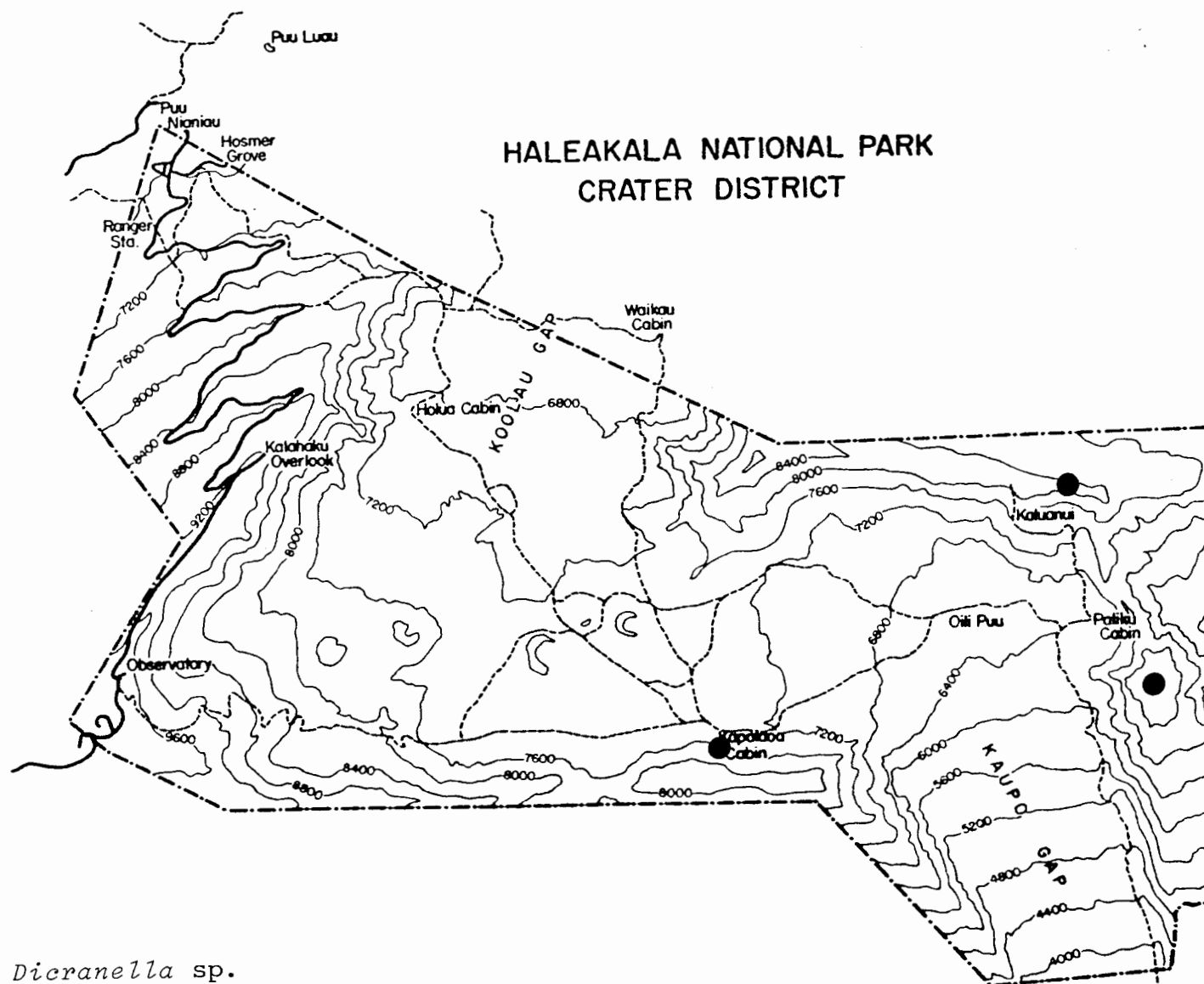
Daltonia contorta C. Muell.



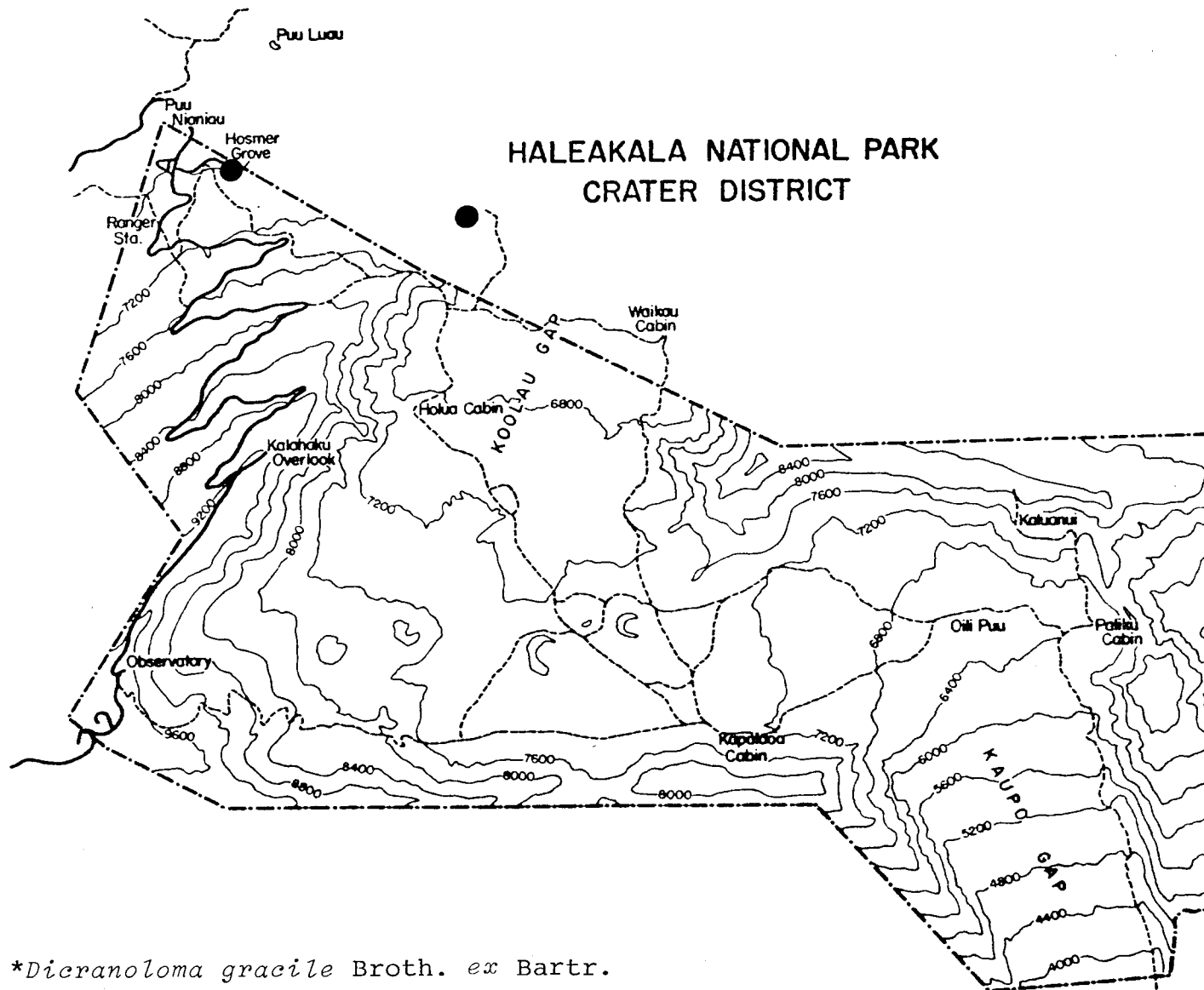
Daltonia pseudostenophylla Bartr.



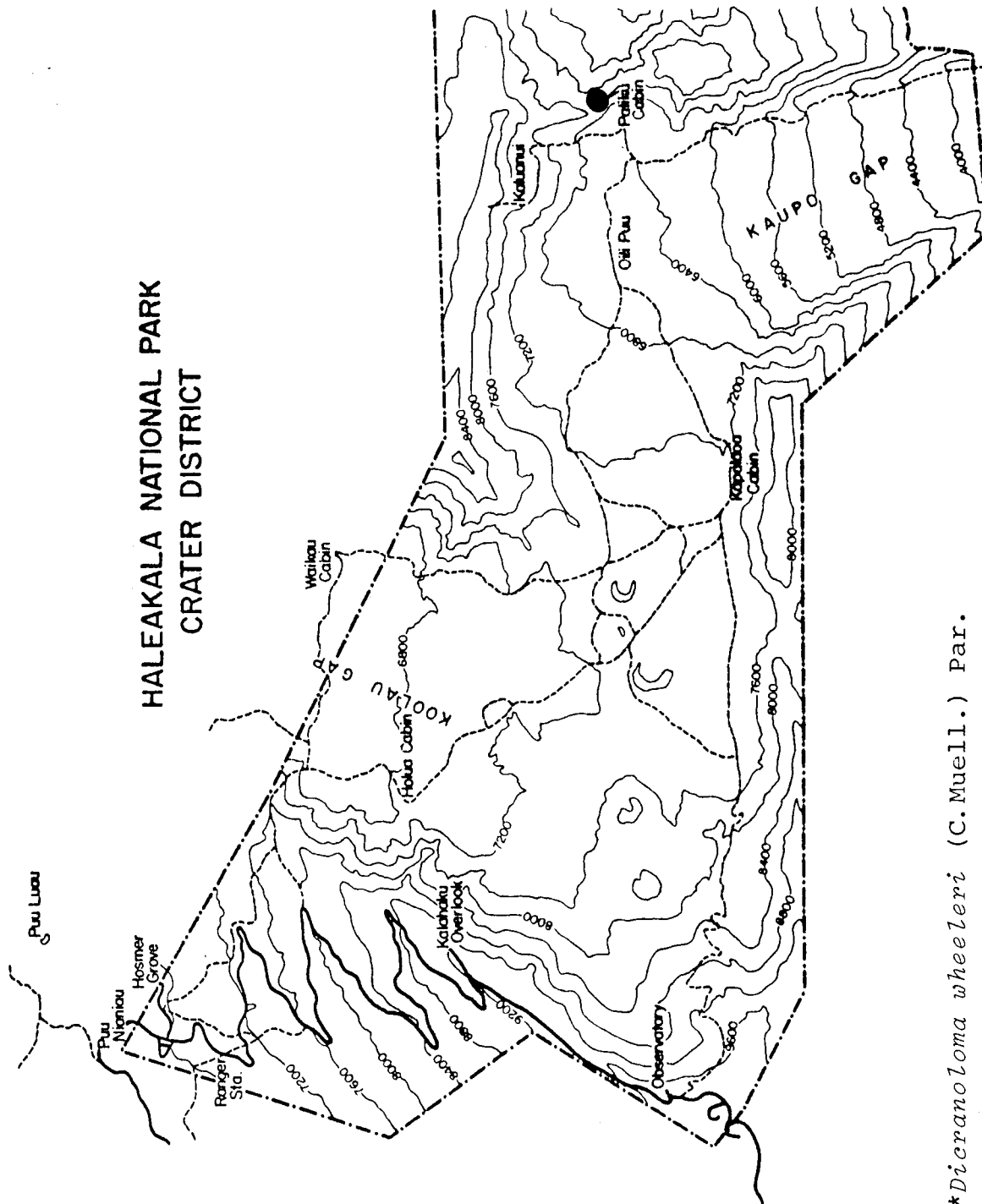
Desmatodon convolutus (Brid.) Grout



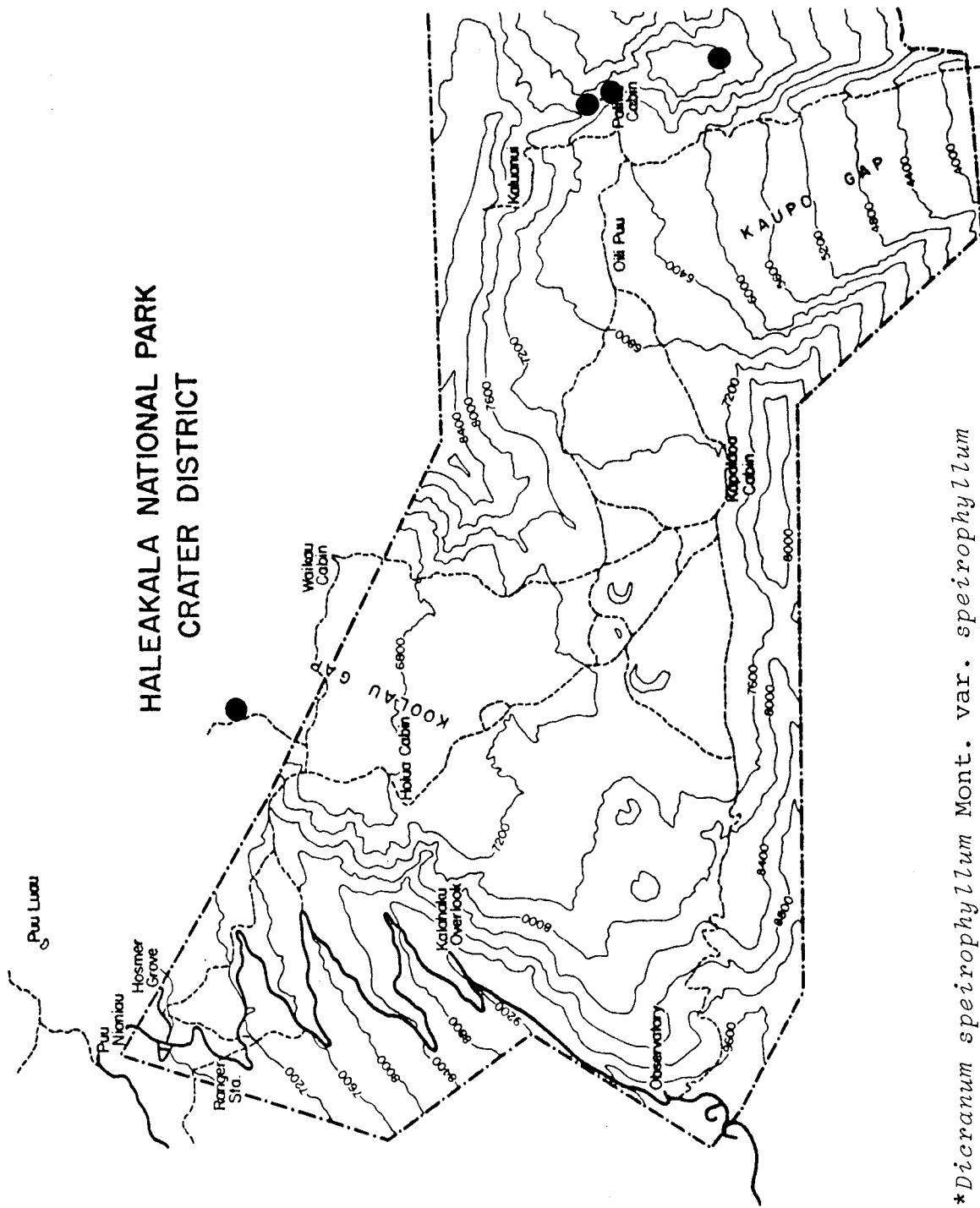
Dicranella sp.



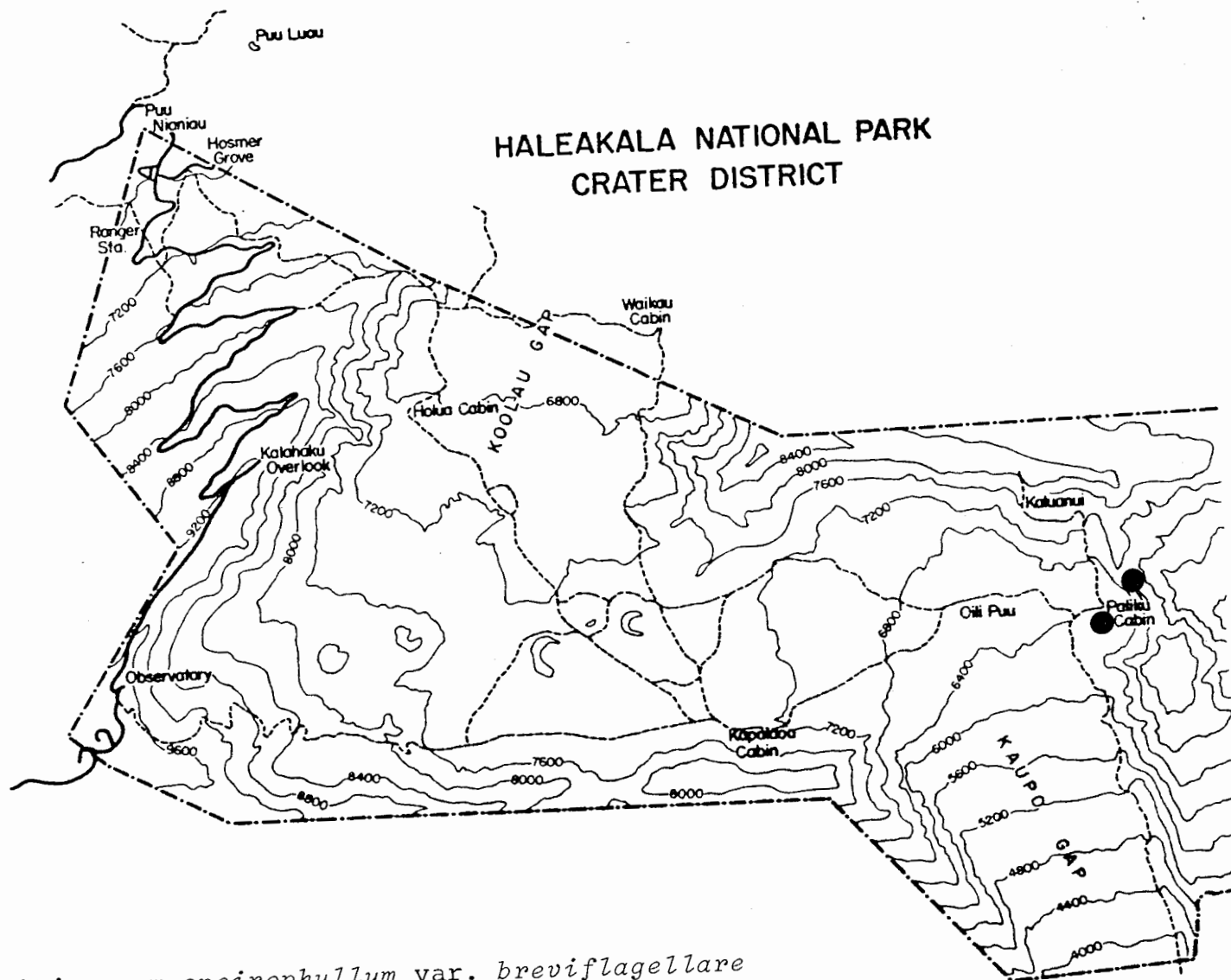
**Dicranoloma gracile* Broth. ex Bartr.



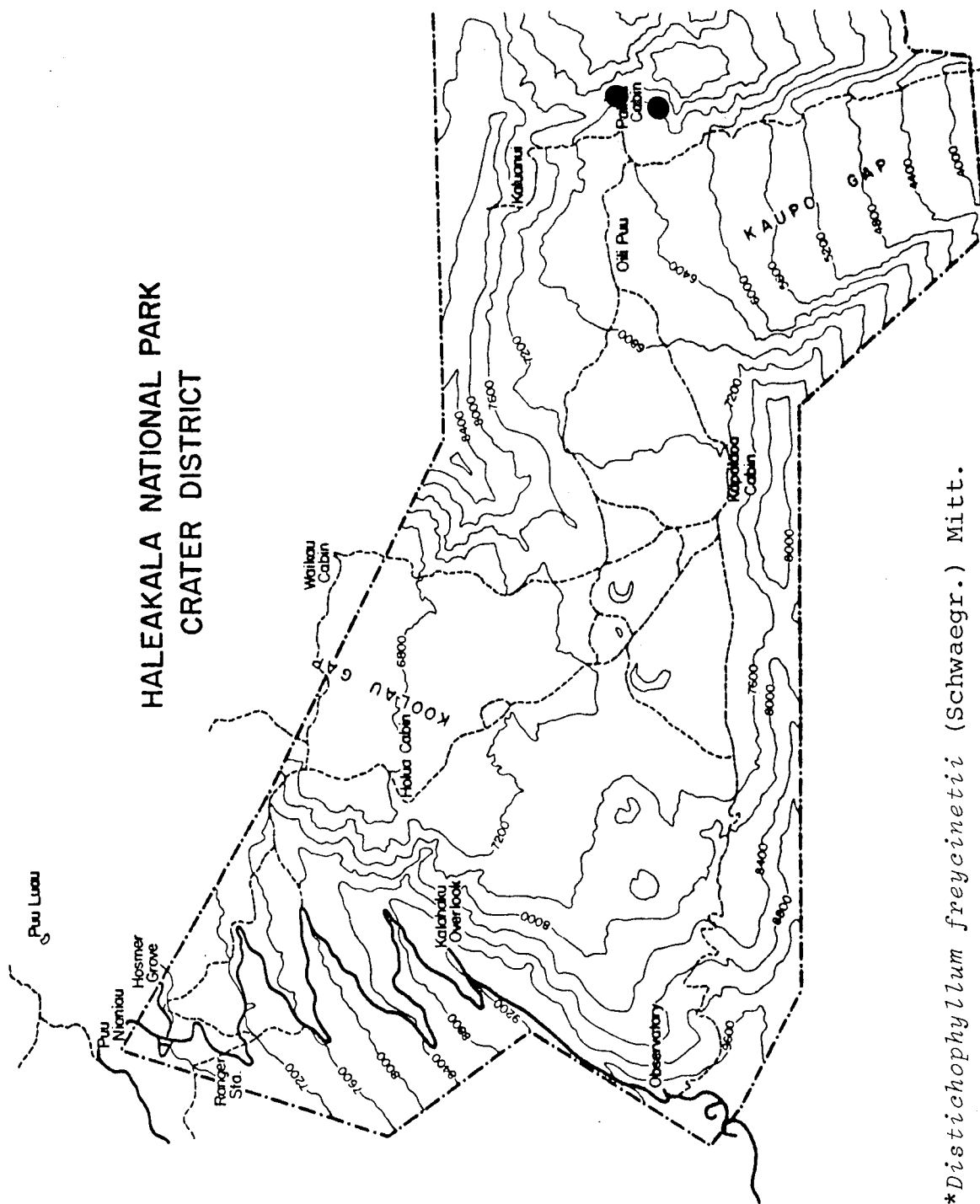
**Diceranoloma wheeleri* (C. Muell.) Par.



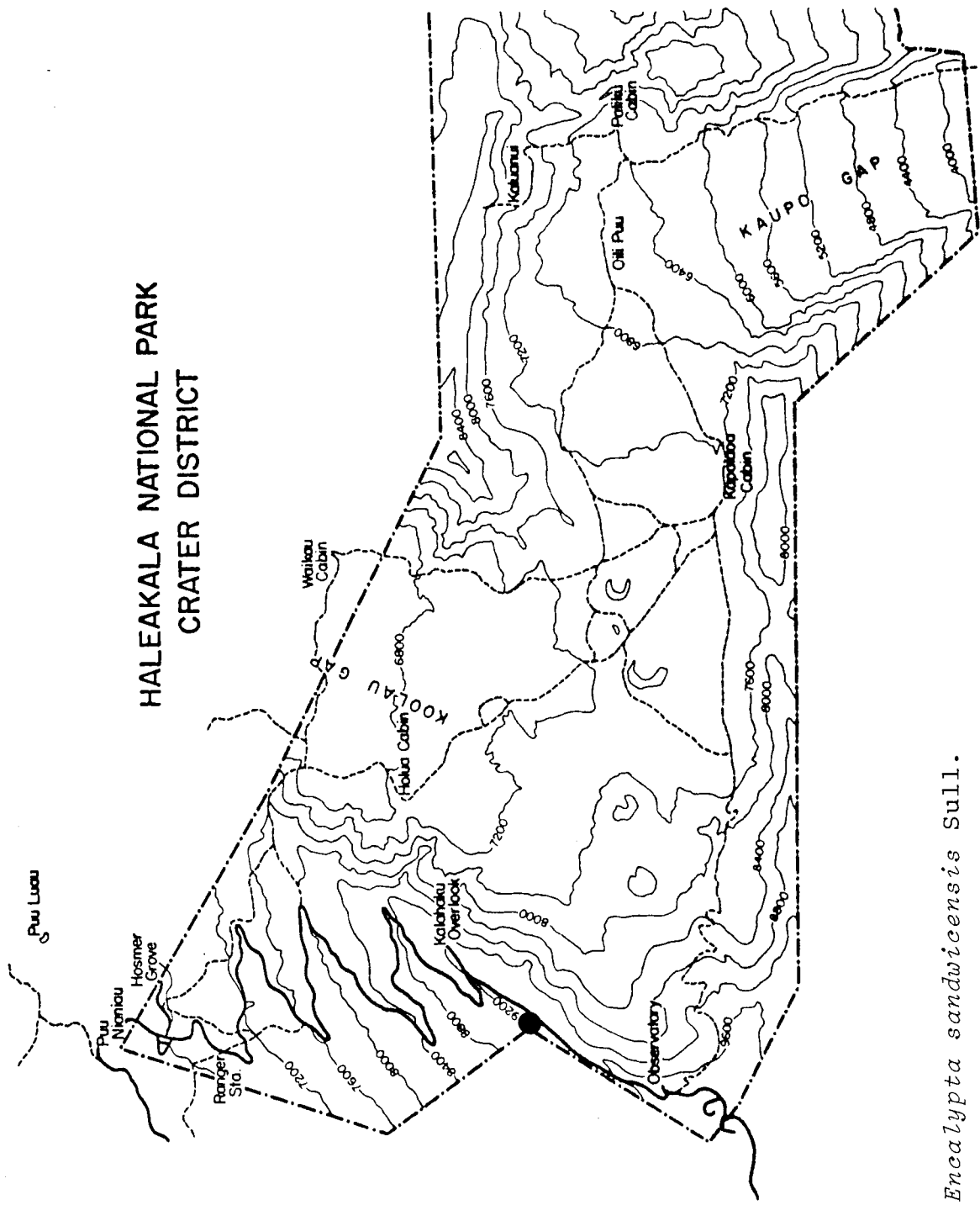
**Dicranum speirophyllum* Mont. var. *speirophyllum*



**Dicranum speirophyllum* var. *breviflagellare*
(C. Muell.) Bartr.



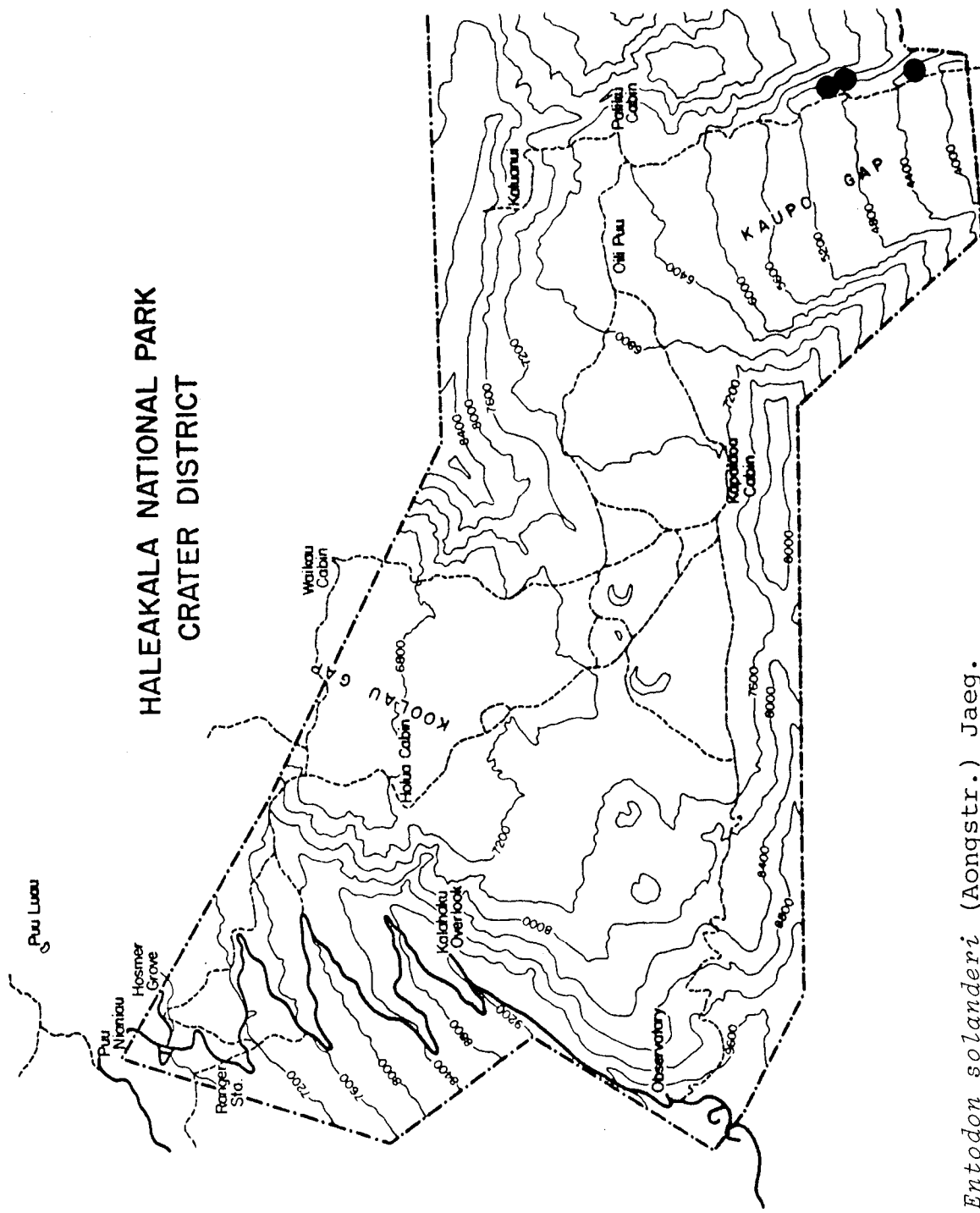
**Distichophyllum freycinetii* (Schwaegr.) Mitt.



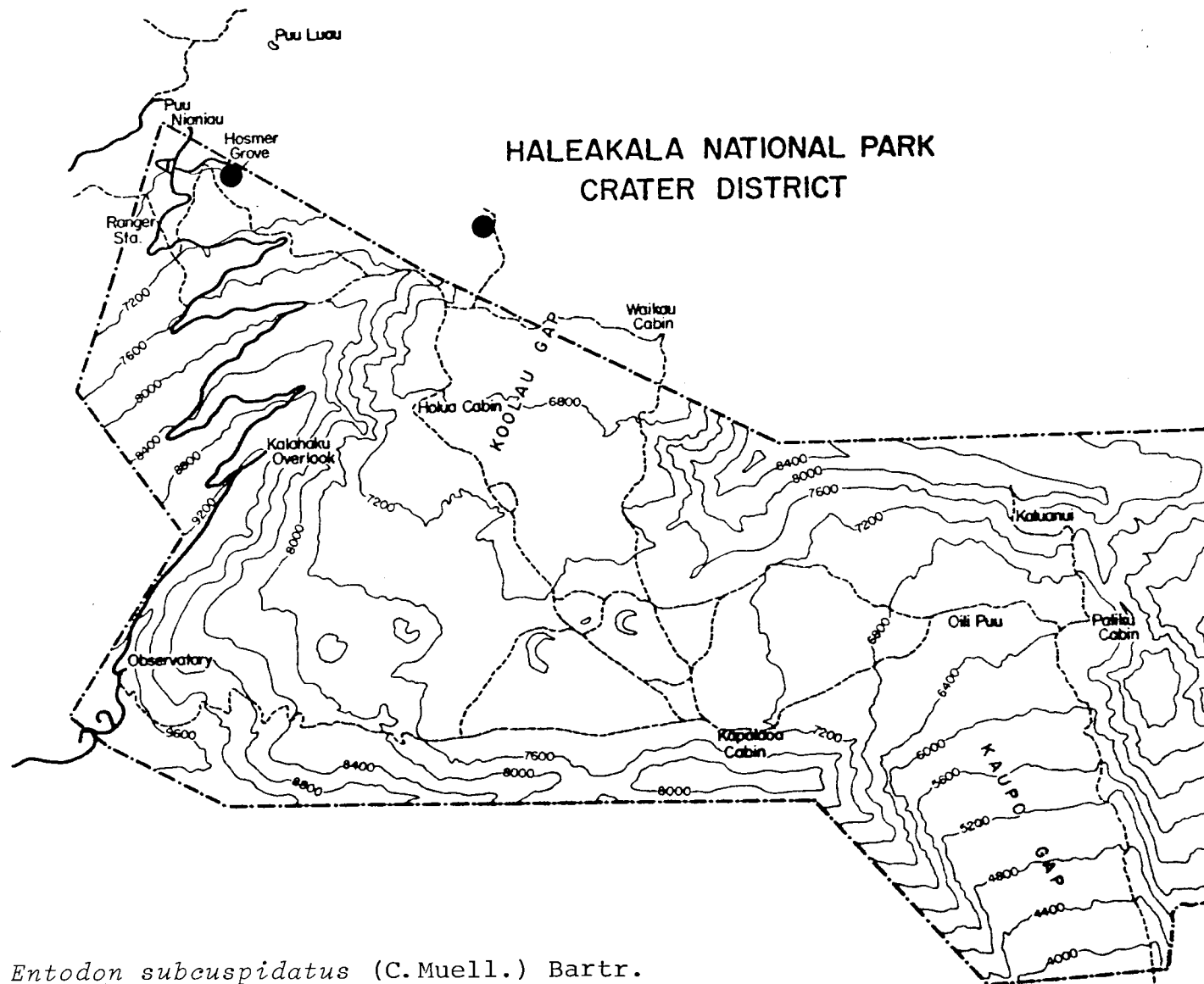
Encalypta sandwicensis Sull.

[illegible]

**Encalypta scabrata* Bartr.



Entodon solanderi (Aongstr.) Jaeg.

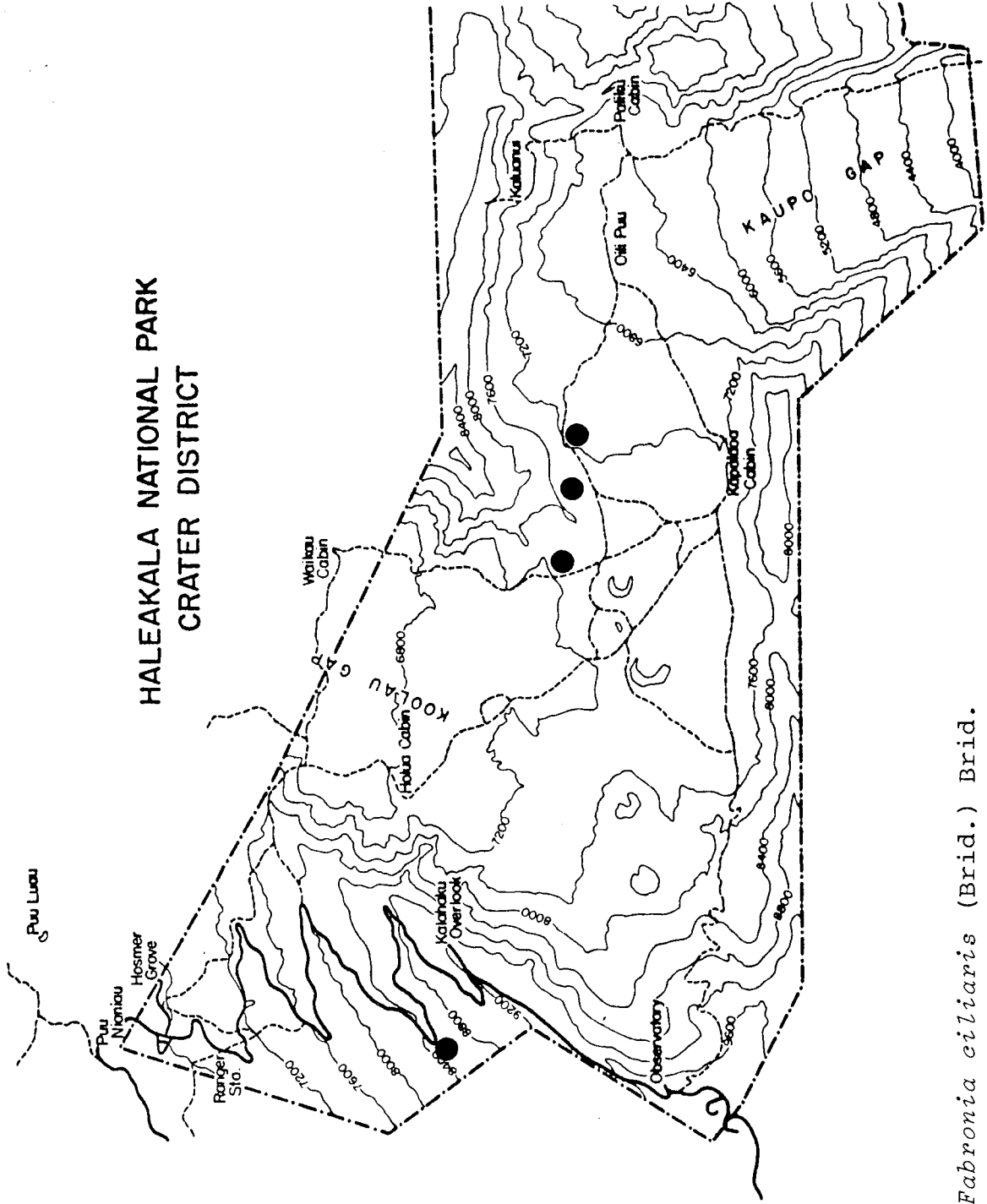


Entodon subcuspidatus (C. Muell.) Bartr.

[illegible]

Eurhynchium vagans (Jaeg.) Bartr.

HALEAKALA NATIONAL PARK CRATER DISTRICT

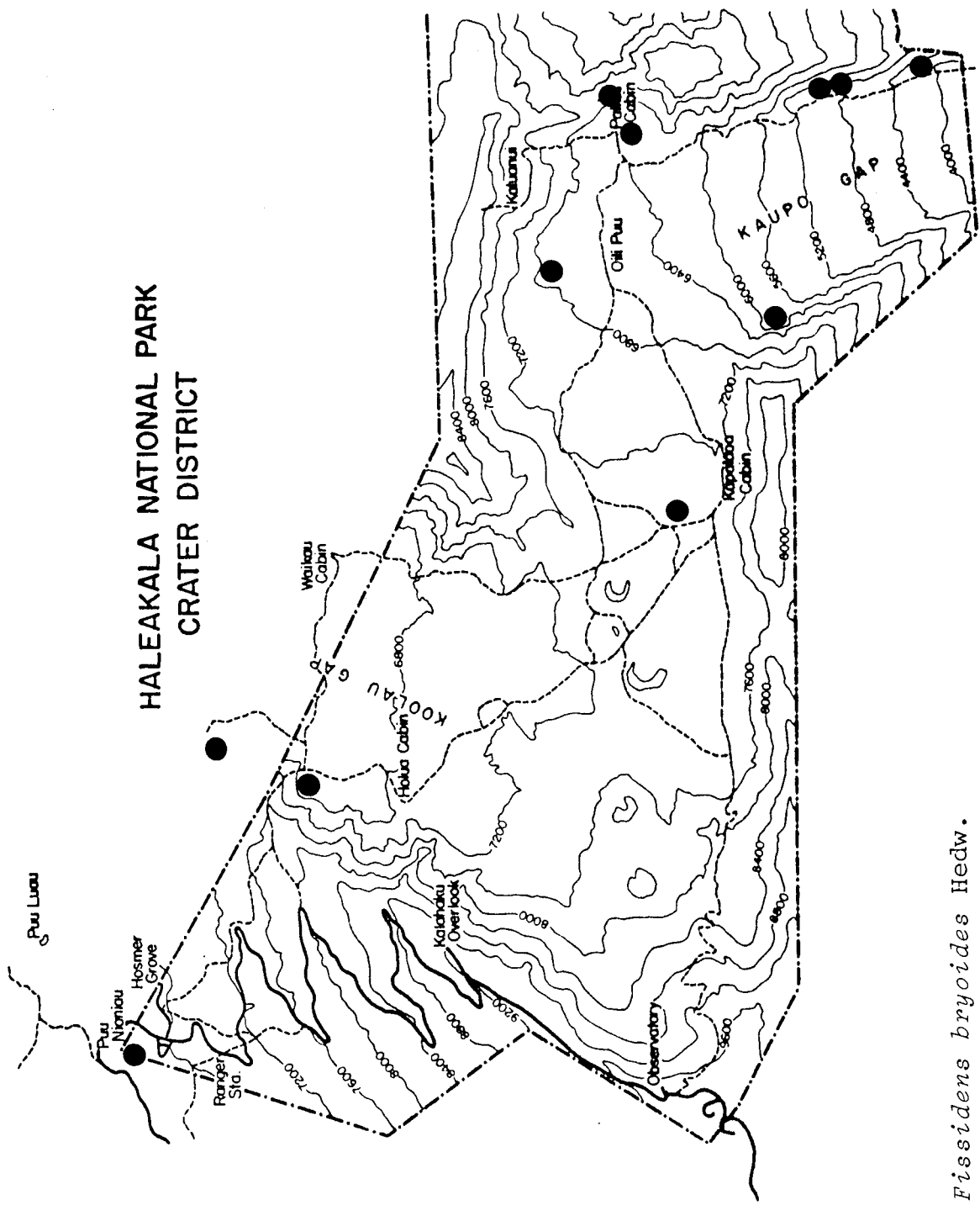


Fabronia ciliaris (Brid.) Brid.

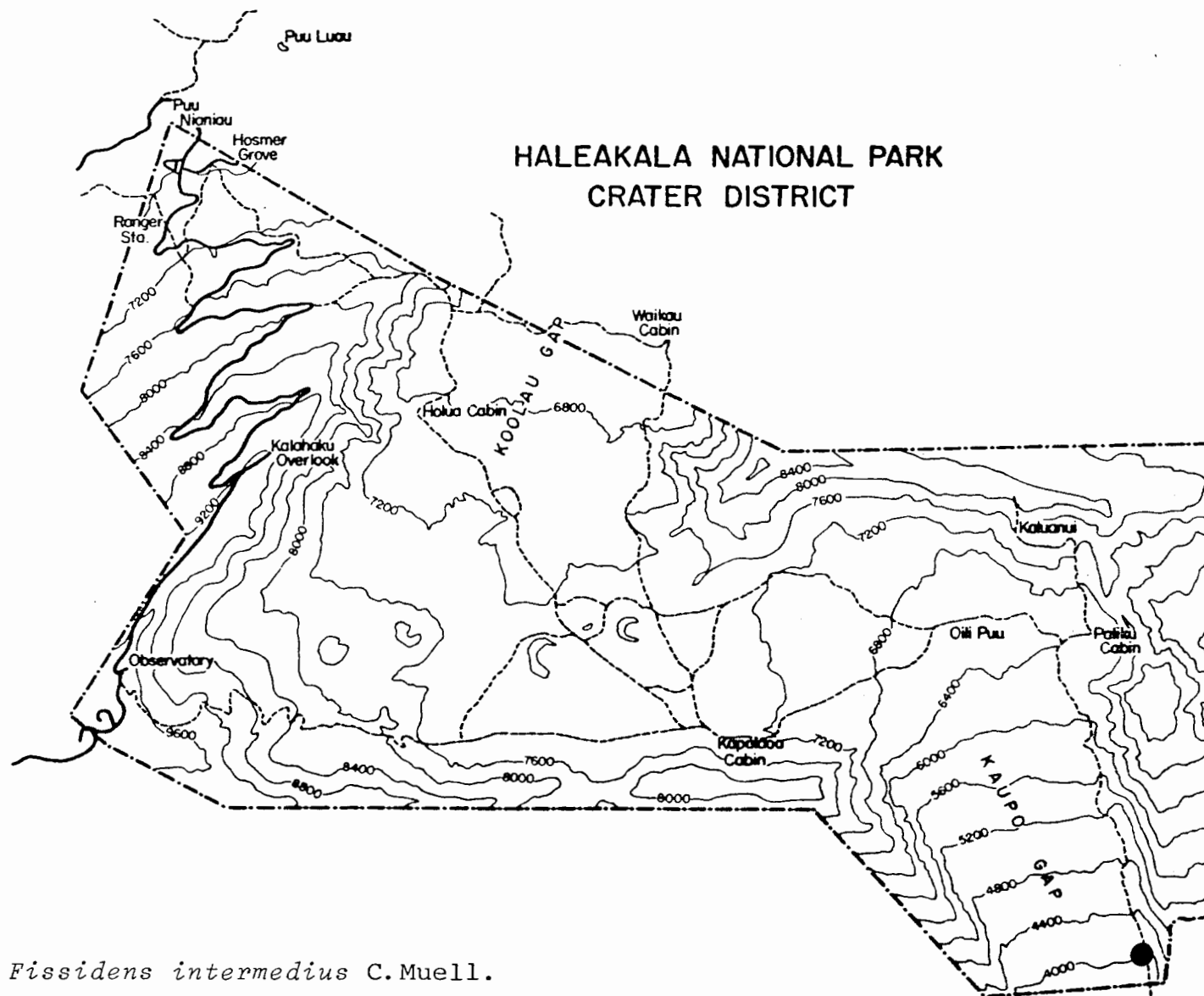
A detailed topographic map of the Haleakala National Park Crater District. The map features contour lines indicating elevation, with labels such as 2000, 4000, 6000, 8000, and 10000 feet. Key locations and landmarks include:

- Trails:** Indicated by dashed lines, including the Koolau G. Trail and the Kaupō G. Trail.
- Cabins:** Waikau Cabin, Koolau Cabin, and Kaupō Cabin.
- Observatory:** Located on the eastern slope.
- Overlook:** Kalanikulu Overlook.
- Other Features:** Puu Nihoa, Hosmer Grove, Ranger Sta., Puu Luau, Puu Kilauea, and the Kaupō G. area.

Fissidens aphelotaxifolius Pursell



Fissidens bryoides Hedw.



Fissidens intermedius C. Muell.

A detailed topographic map of the Haleakala National Park Crater District. The map shows the rugged terrain of Haleakala, including the central crater rim and surrounding slopes. Key features include:

- Elevation Contours:** Labeled with values such as 200, 800, 1600, 2400, 3200, 4000, 4800, 5600, 6400, 7200, 8000, 8800, 9600, and 10000 feet.
- Trails:** Indicated by dashed lines, including the main trail from the Visitor Center to the summit and various side trails.
- Landmarks and Facilities:**
 - Visitor Center:** Located at the bottom left, near the parking area.
 - Ranger Sta.:** Located near the Visitor Center.
 - Hosmer Grove:** A forested area near the Visitor Center.
 - Puu Nani:** A prominent peak on the left side of the map.
 - Kalanikulu Overlook:** A viewpoint on the western slope.
 - Holua Cabin:** Located on the western slope.
 - Waikau Cabin:** Located on the northern slope.
 - Kapalapa Cabin:** Located on the eastern slope.
 - Puu Puu:** A peak on the eastern slope.
 - Puu Puu Cabin:** Located near the top right.
 - Observatory:** Located on the eastern slope.
- Geographic Labels:**
 - KAUAI:** Labeled on the left side of the map.
 - KAUPO:** Labeled on the right side of the map.
 - KAHOOLAWE:** Labeled at the bottom of the map.
- Scale and Orientation:** A scale bar at the bottom indicates distances in miles (0 to 10) and kilometers (0 to 16). A north arrow is located in the bottom right corner.

**Fissidens lancifolius* Bartr.

A detailed topographic map of the Haleakala National Park Crater District. The map features numerous contour lines indicating elevation, with labels such as 8000, 7200, 6800, 6400, 6000, 5600, 5200, 4800, 4400, 4000, 3600, 3200, 2800, 2400, 2000, 1600, 1200, 800, and 400. Key locations and landmarks include:

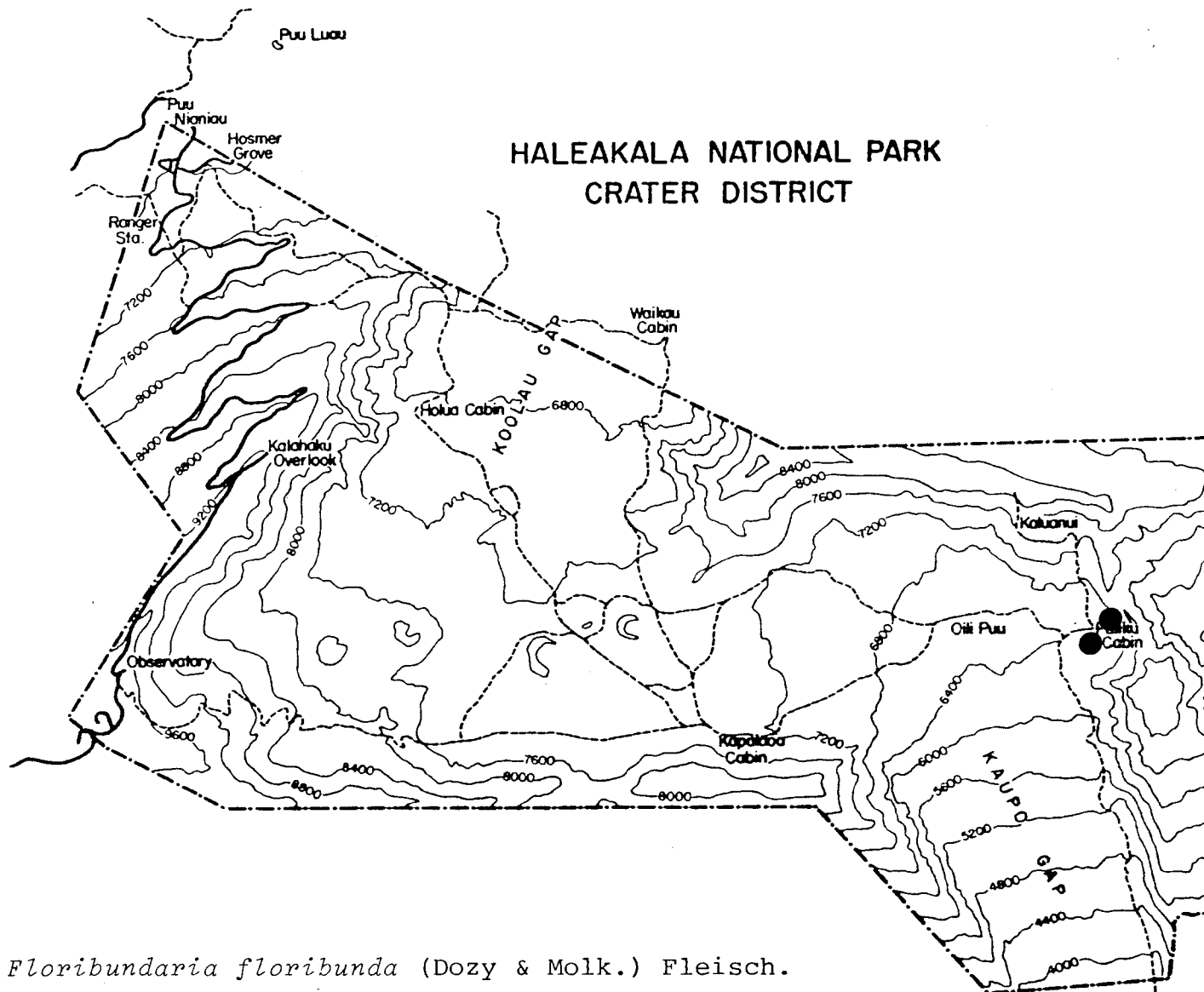
- Trails:** Haleakala Trail, Koolau Trail, and Waipahoehoe Trail.
- Cabins:** Waipahoehoe Cabin, Koolau Cabin, and Waipahoehoe Cabin.
- Observatory:** Haleakala Observatory.
- Overlook:** Koolau Overlook.
- Grave:** Hosmer Grave.
- Stations:** Ranger Sta. and Nianiau.
- Other:** Puu Luau, Puu Kilauea, and various other peaks and ridges.

 The map is oriented with North at the top. A scale bar is located in the bottom right corner, showing distances in miles (0 to 10) and kilometers (0 to 16). The title 'HALEAKALA NATIONAL PARK CRATER DISTRICT' is prominently displayed in the upper left corner.

**Fissidens pacificus* Aongstr.

[illegible]

Fissidens taxifolius Hedw.



Floribundaria floribunda (Dozy & Molk.) Fleisch.

[illegible]

**Funaria subintegra* Broth.

HALEAKALA NATIONAL PARK
CRATER DISTRICT

Puu Luau

Puu Nianiau

Hosmer Grove

Ranger Sta.

Waikau Cabin

Koolau

Holua Cabin

Kalahadai Overlook

Observatory

Kapehu Cabin

Kaupo

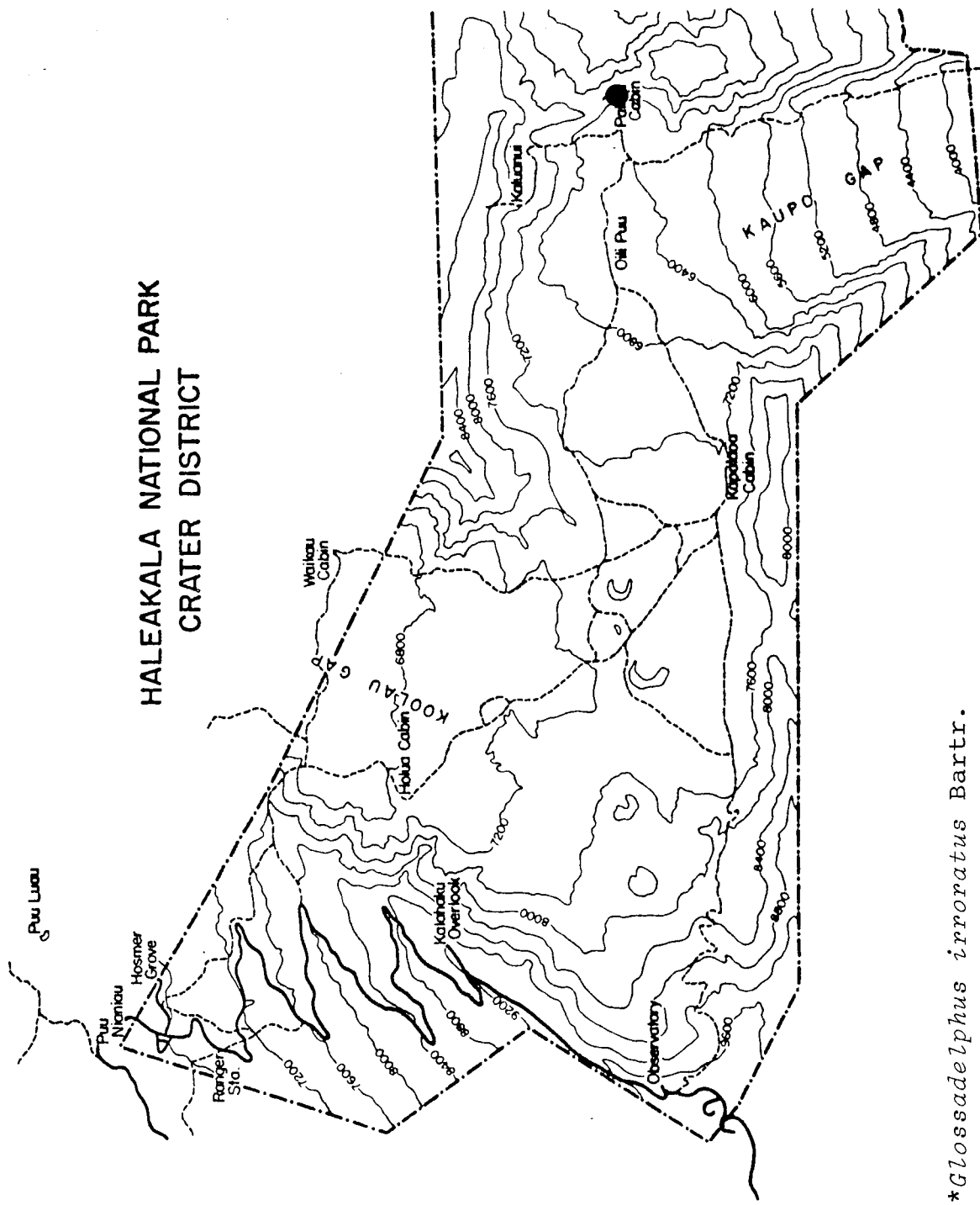
Oili Puu

Kalanui

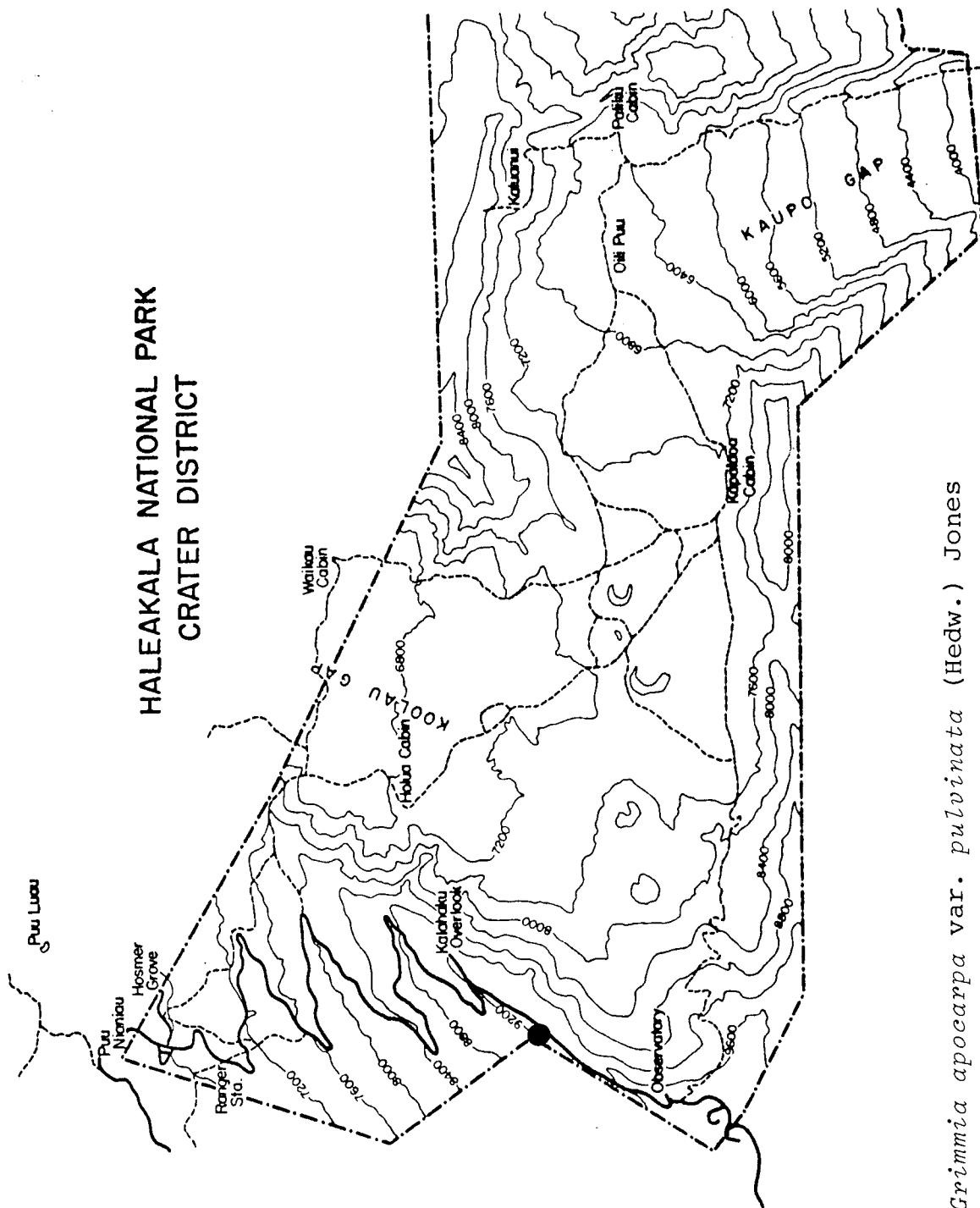
Summit

**Glossadelphus chrysobasilaris* Broth.

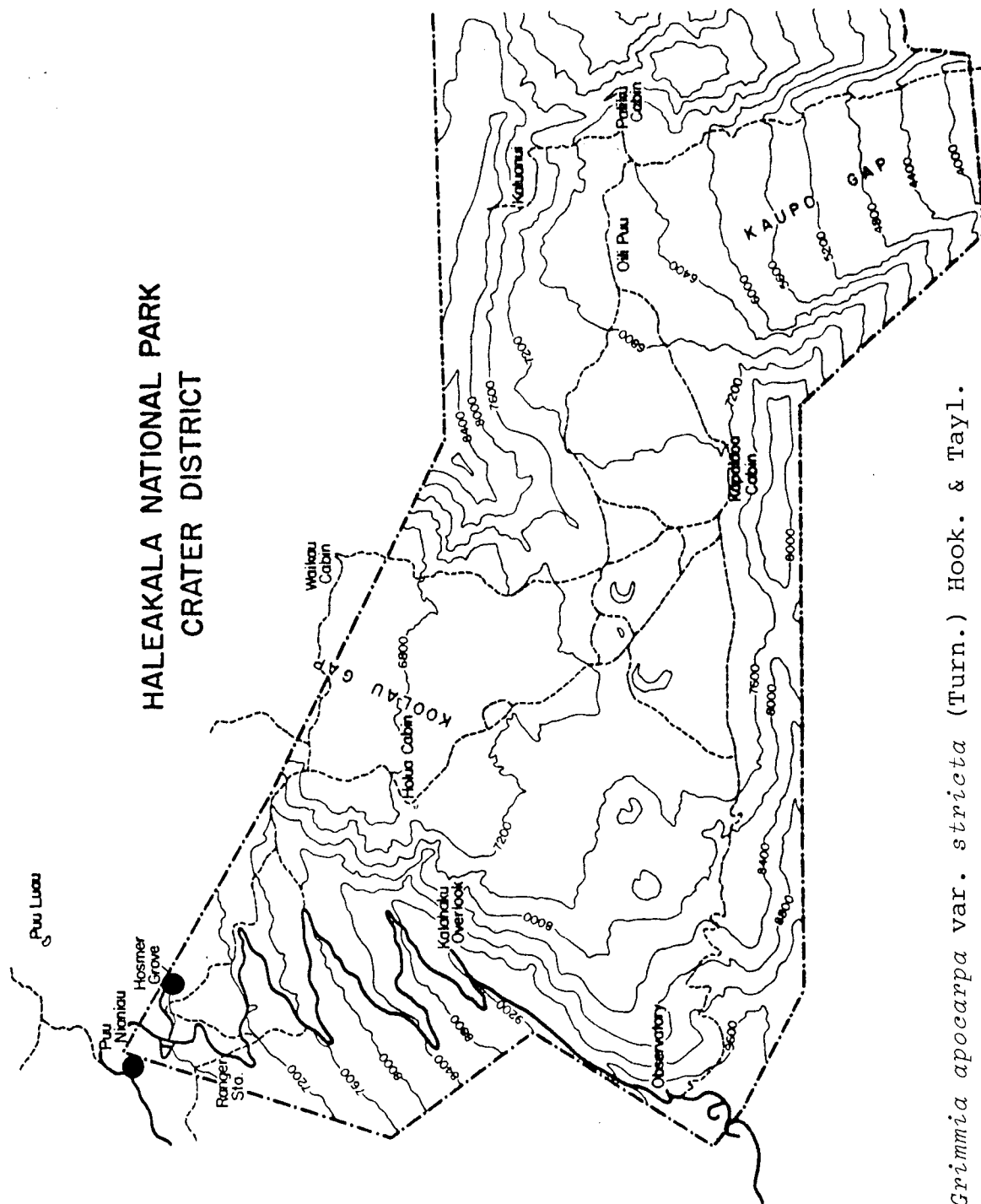
**Glossadelphus chrysobasilaris* Broth.



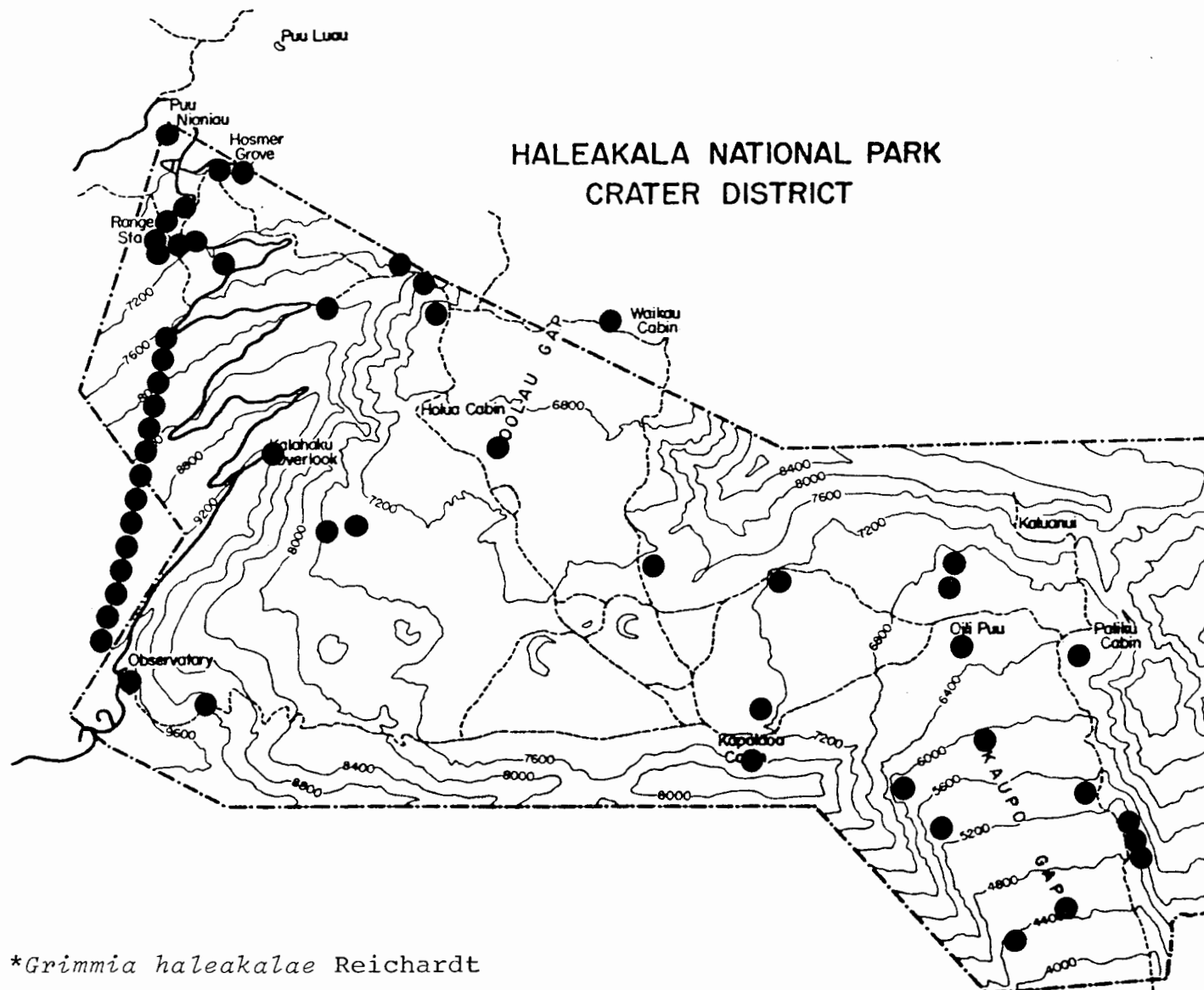
**Glossadelphus irroratus* Bartr.

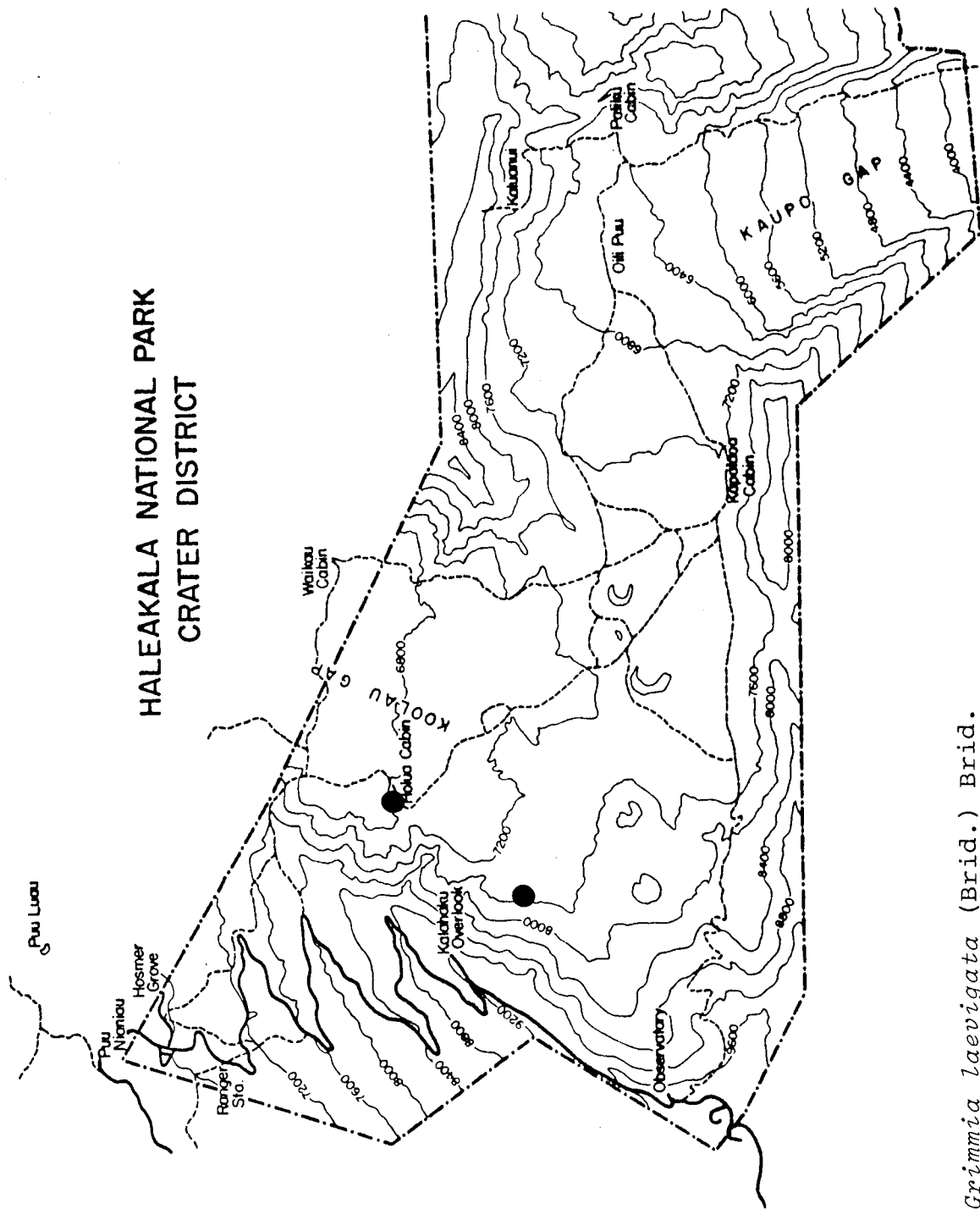


Grimmia apocarpa var. *pulvinata* (Hedw.) Jones

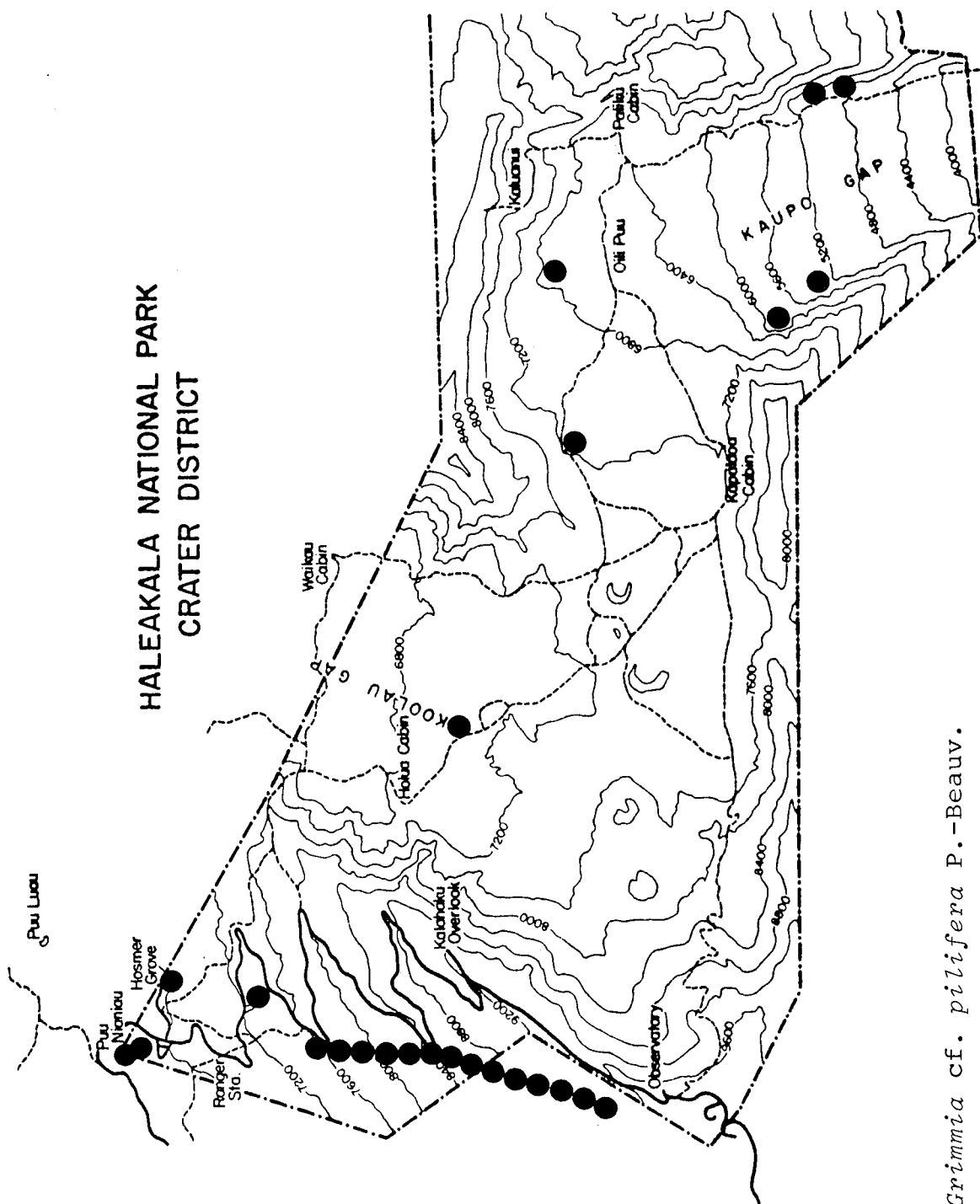


Grimmia apocarpa var. *stricta* (Turn.) Hook. & Tayl.

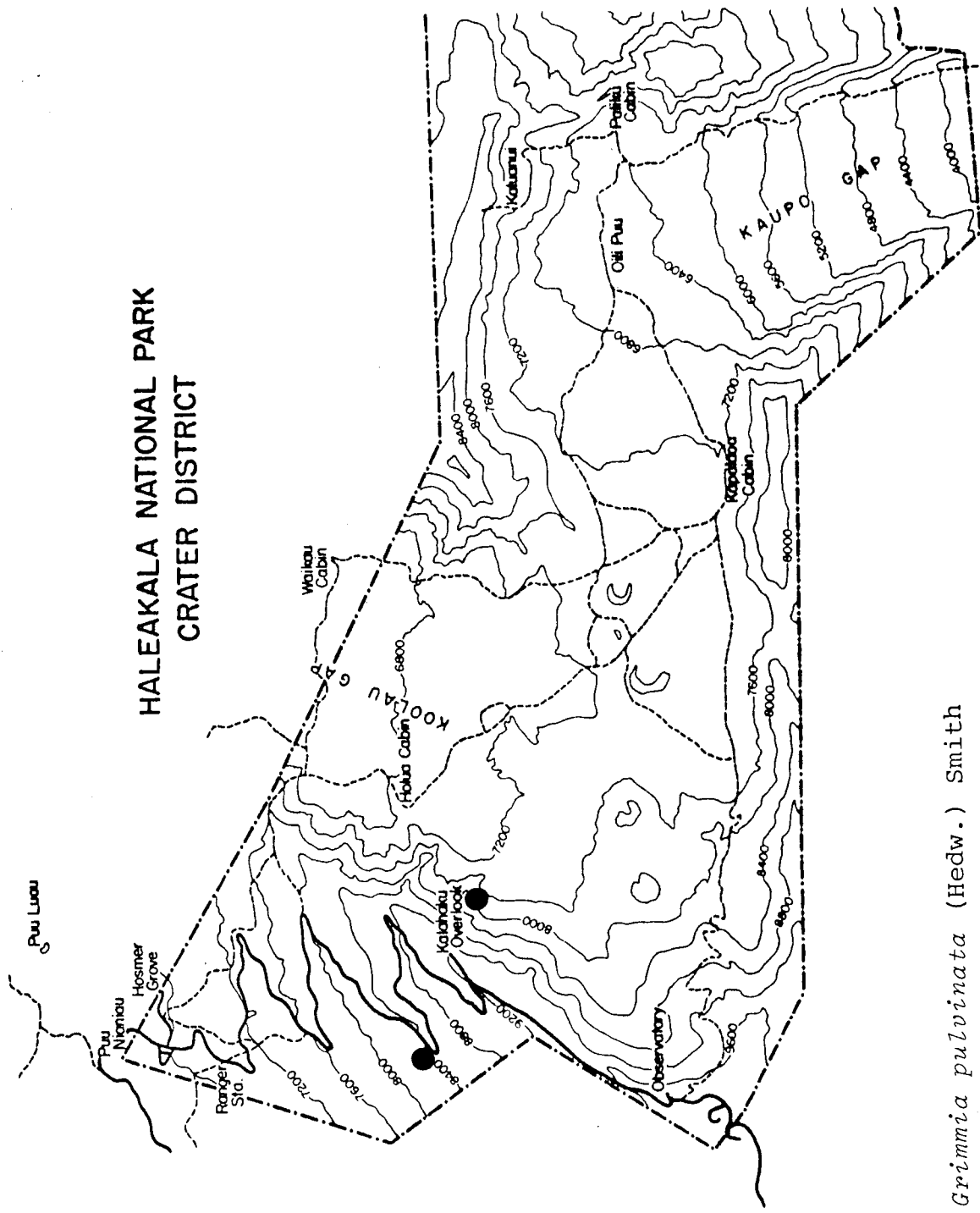




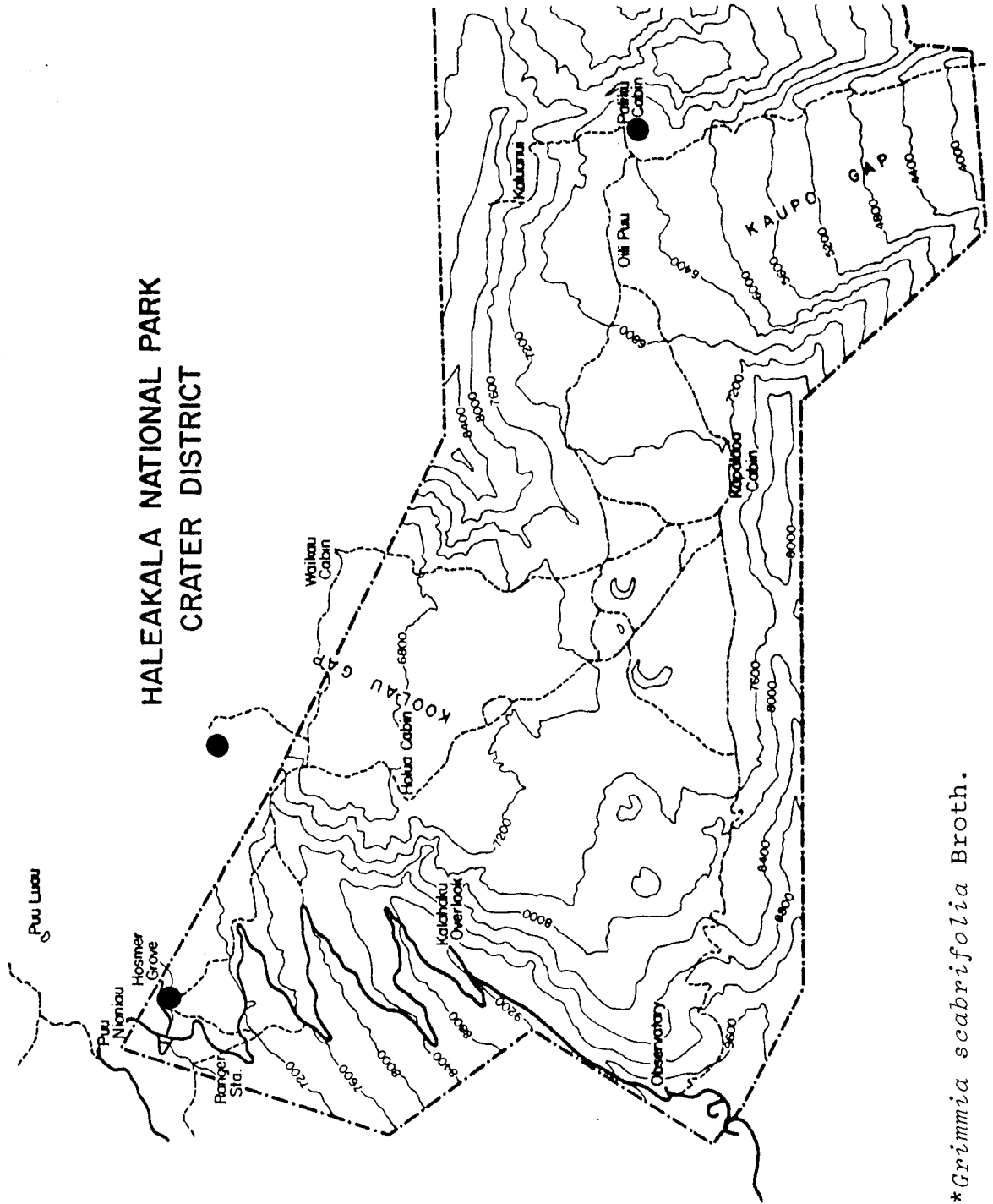
Grimmia laevigata (Brid.) Brid.



Grimmia cf. pilifera P.-Beauv.



Grimmia pulvinata (Hedw.) Smith



**Grimmia scabrifolia* Broth.

A detailed topographic map of the Haleakala National Park Crater District. The map features numerous contour lines indicating elevations from 6000 to 9600 feet. Key locations labeled include Puu Luau at the top left, Puu Nianiau, Hosmer Grove, Ranger Sta., Waikou Cabin, Holua Cabin, Koolau Gap, Katalahaku Overlook, Observatory, Kapalapa Cabin (marked with a black dot), Kaluanui, Oili Pui, Palila Cabin, and Taupo. A dashed line outlines the park boundary, and a solid line indicates a trail or road winding through the terrain. The title "HALEAKALA NATIONAL PARK CRATER DISTRICT" is prominently displayed in the upper right quadrant.

Grimmia torquata Hornsch.

[illegible]

Grimmia trichophylla Grev.

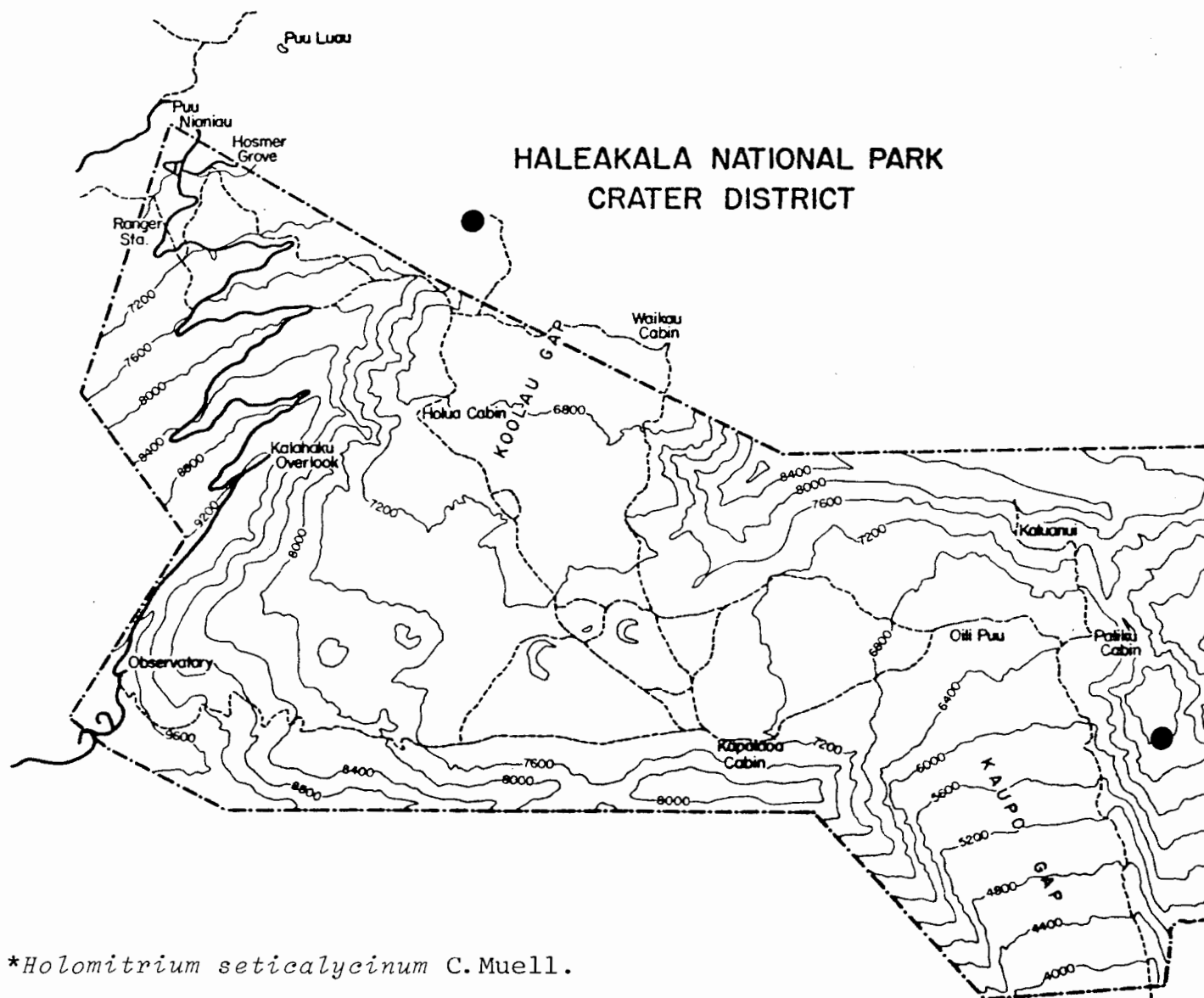
A detailed topographic map of the Haleakala National Park Crater District. The map features contour lines indicating elevations from 4000 to 9000 feet. Key landmarks and locations marked include:

- Top Left:** Puu Luau, Puu Nianiau, Hosmer Grove, Ranger Sta.
- Center:** Koolau Gap, Hakua Cabin, Kalahaku Overlook, Observatory.
- Right Side:** Waikeu Cabin, Koolau Gap, Koolau, Oili Puu, Paliku Cabin, Paliku Cabin.
- Bottom Right:** Kaupo, Kapalapa Cabin.

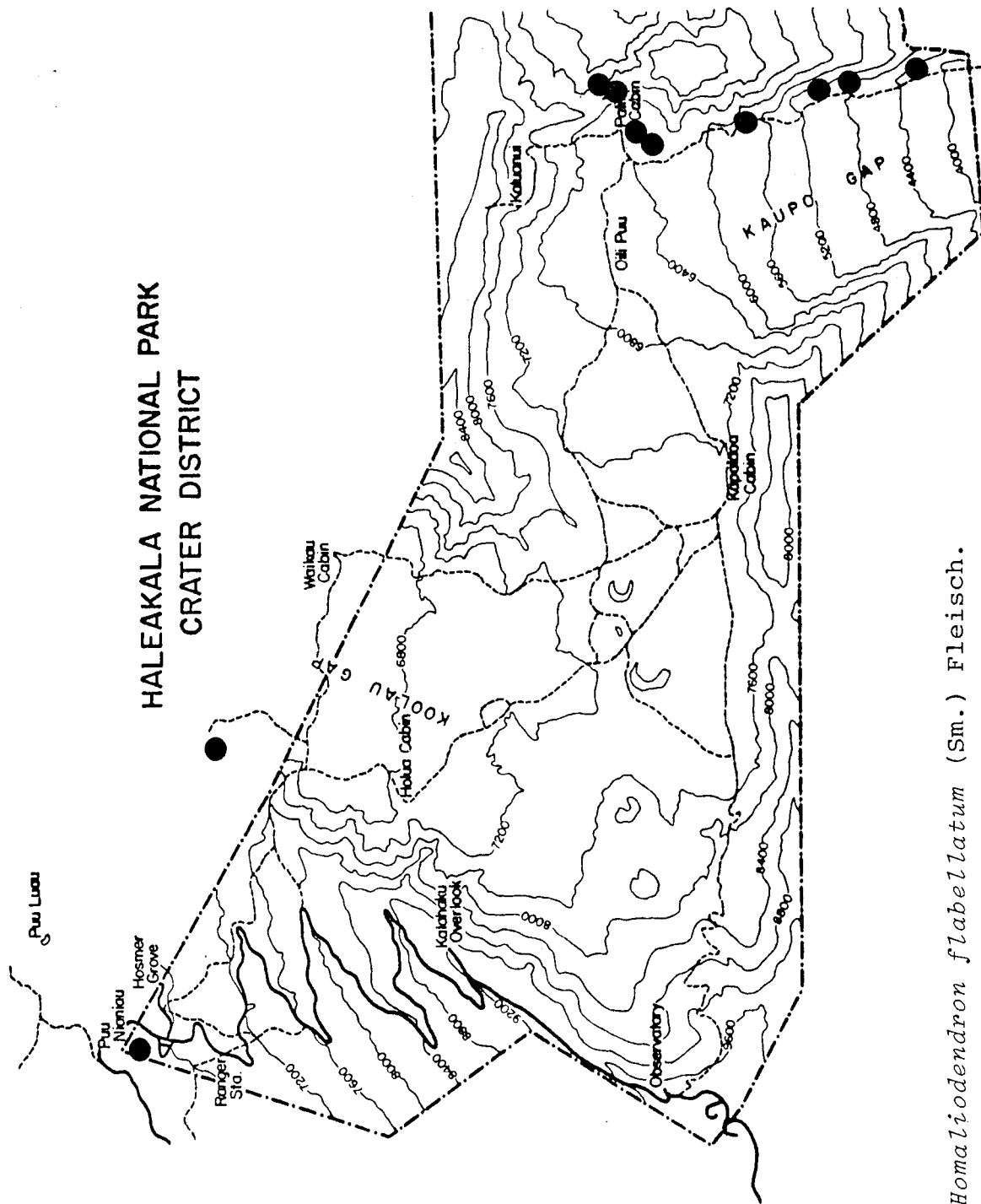
 The map also shows various trails and roads, some indicated by dashed lines. The title 'HALEAKALA NATIONAL PARK CRATER DISTRICT' is prominently displayed in the upper center.

Haplohymentum triste (Ces.) Kindb.

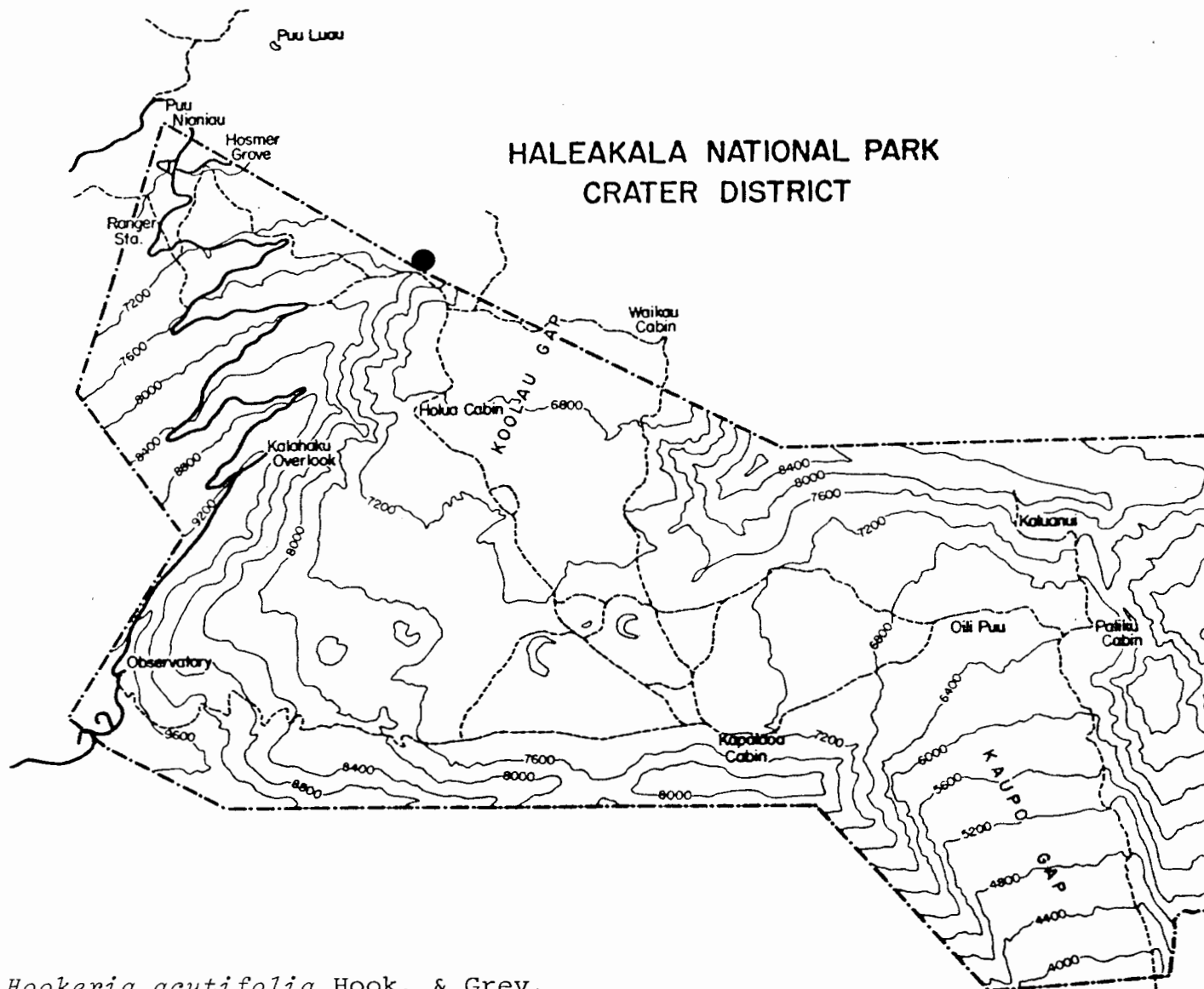
Haplohymenium triste (Ces.) Kindsb.



**Holomitrium seticalycinum* C. Muell.



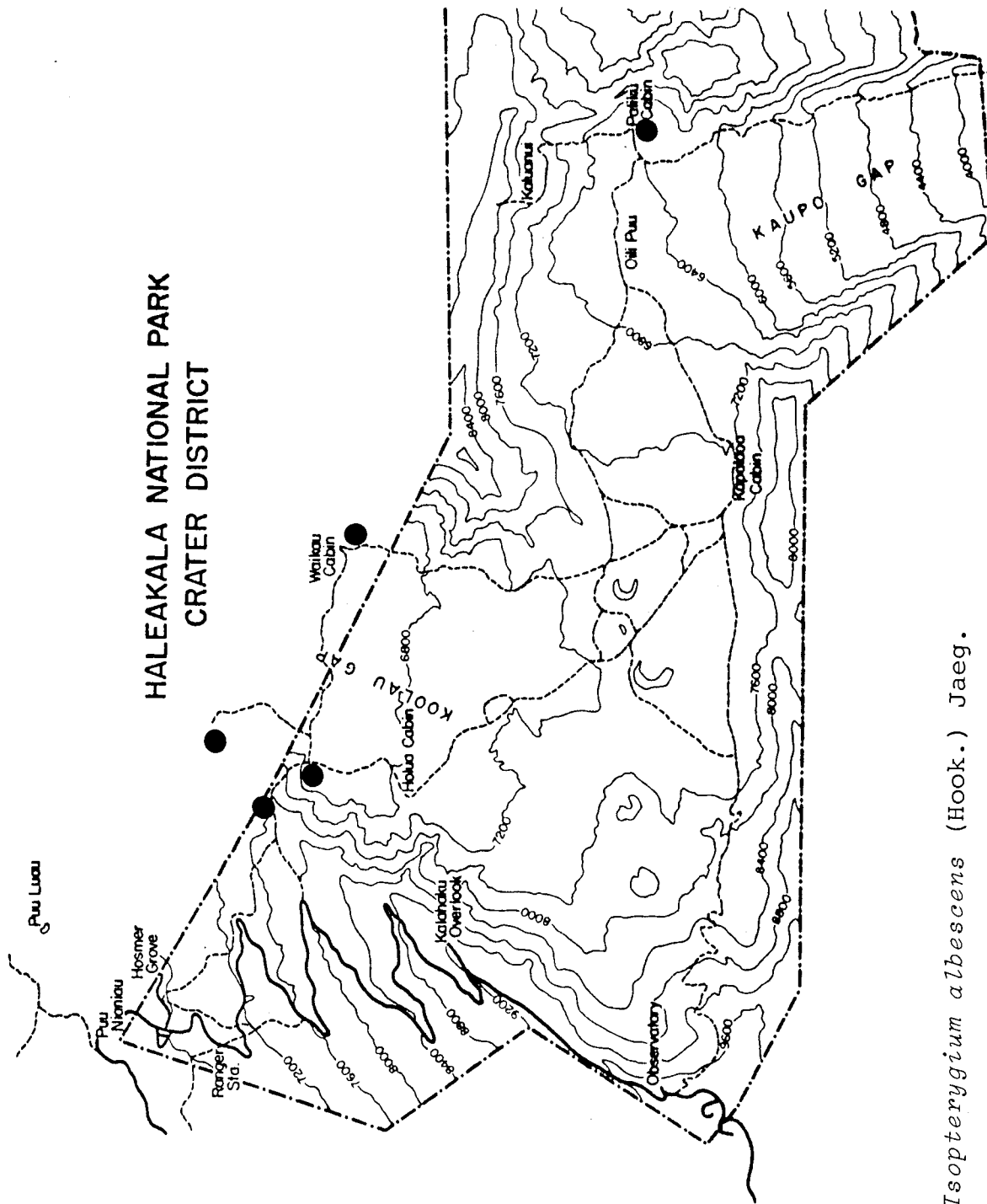
Homaliodendron flabellatum (Sm.) Fleisch.



Hookeria acutifolia Hook. & Grev.

[illegible]

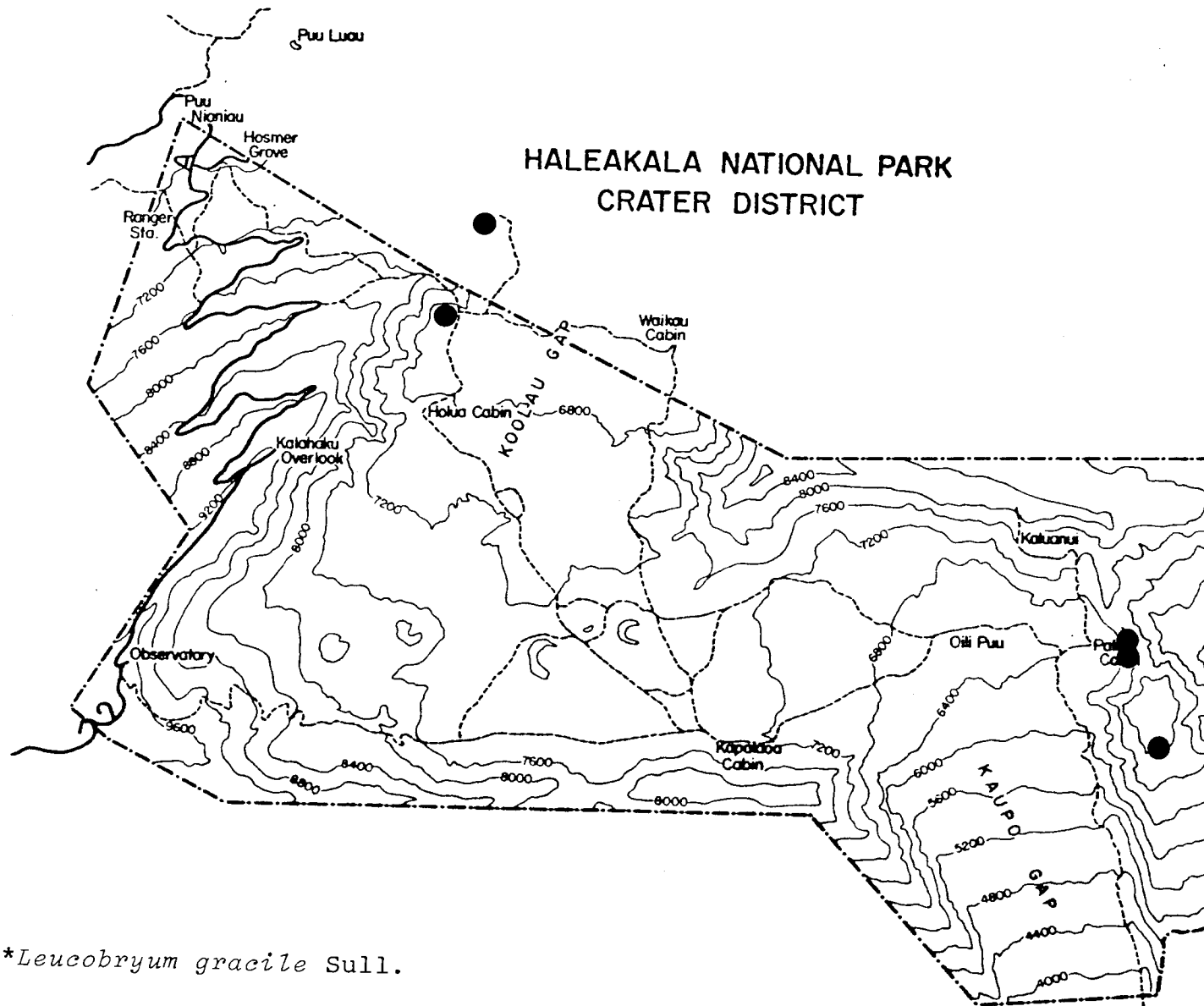
Hypnum plumaeforme Wils.



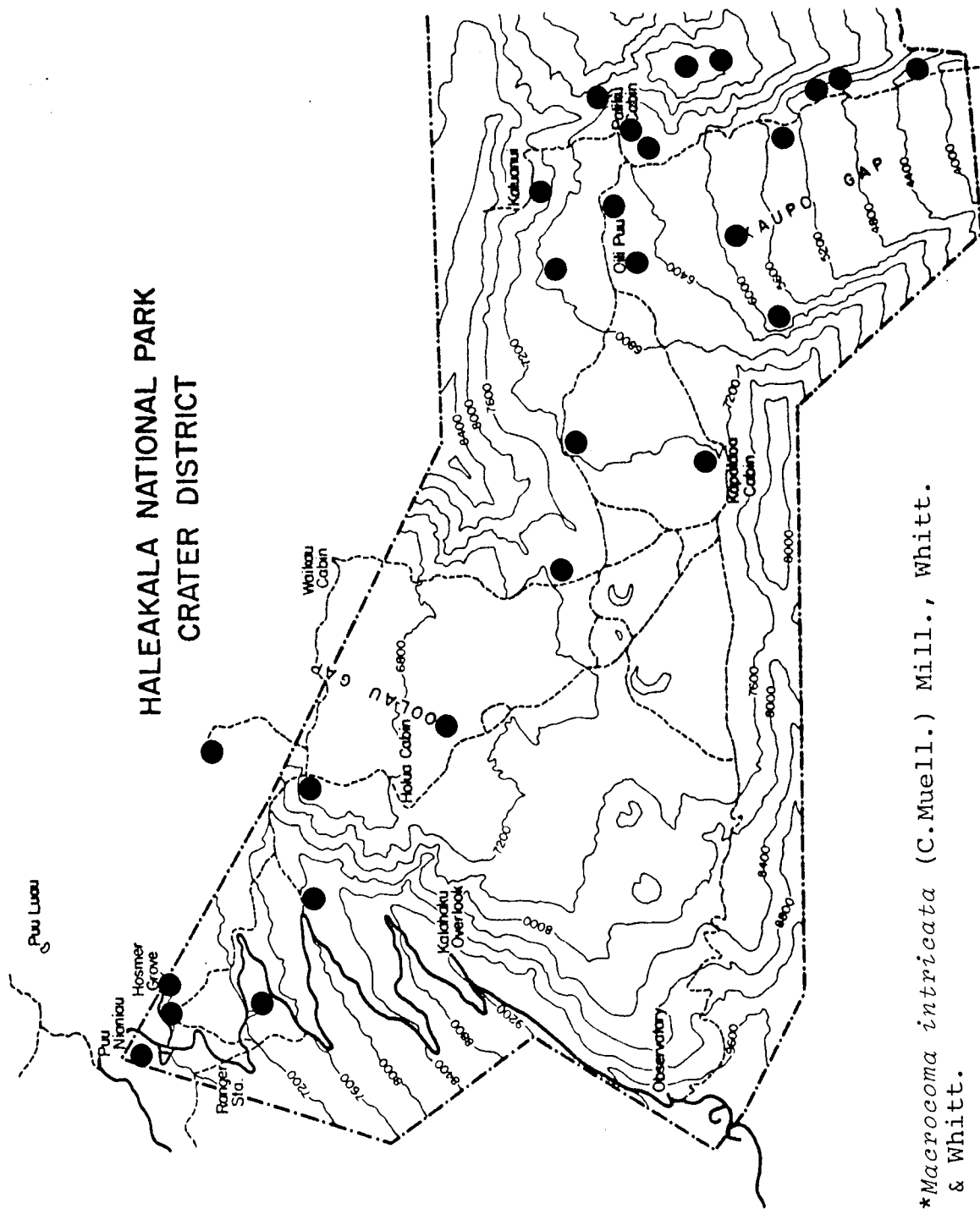
Isopterygium albescent (Hook.) Jaeg.

A detailed topographic map of the Haleakala National Park Crater District. The map shows the rugged terrain of Haleakala, including the central crater rim and surrounding slopes. Elevation contours are drawn at intervals of 800 feet, ranging from 6400 to 9600 feet. Key locations labeled include Puu Luau, Puu Naniou, Hosmer Grove, Ranger Sta., Koolau G.A., Waialeale Cabin, Kahuku Overlook, Koolau Cabin, Oili Pui, Puukia Cabin, Kapahulu Cabin, and an Observatory. A dashed line indicates a trail or boundary route across the park. The map also shows the proximity to Maui and Hawaii.

Leptodontium flexifolium (With.) Hampe



**Leucobryum gracile* Sull.



**Macrocoma intricata* (C.Muell.) Mill., Whitt.
& Whitt.

A detailed topographic map of the Haleakala National Park Crater District. The map shows the central crater floor and surrounding ridges. Key features include:

- Peaks and Elevation:** Puu Luau (9000'), Puu Nianiau (8000'), Puu Ula (8000'), Puu Ohi (8000'), and Puu Kaula (8000').
- Trails:** Indicated by dashed lines, including the Haleakala Trail, Koolau Trail, and others.
- Collection Sites:** Marked with black dots, including sites near Puu Nianiau, Puu Ula, Puu Ohi, and Puu Kaula.
- Other Features:** Ranger Sta., Hosmer Grove, Kalanidahu Overlook, Observatory, and various cabins (Haleakala Cabin, Koolau Cabin, Puu Ohi Cabin, Puu Kaula Cabin).
- Topography:** Contour lines are shown at 1000-foot intervals, with labels for 7000, 8000, 9000, and 10000 feet.

**Macromitrium owahiae* C. Muell.

**Macromitrium owahense* C. Muell.

A detailed topographic map of the Haleakala National Park Crater District. The map shows the rugged terrain of Haleakala, with major peaks like Koolau and Kaupo. Key locations marked include Puu Nani, Hosmer Grove, Ranger Sta., Kahanuku Overlook, Waikau Cabin, Koolau Cabin, Kahanuku Cabin, Kipahulu Cabin, Ohi Puu, and Kipahulu. The map includes numerous contour lines indicating elevation, with labels such as 2000, 4000, 6000, 8000, and 10000 feet. A dashed line outlines the boundary of the Crater District. The map is oriented with North at the top.

HALEAKALA NATIONAL PARK
CRATER DISTRICT

Puu Nani
Hosmer Grove
Ranger Sta.
Kahanuku Overlook
Waikau Cabin
Koolau Cabin
Kahanuku Cabin
Kipahulu Cabin
Ohi Puu
Kipahulu
KAUPO
G.A.

2000 4000 6000 8000 10000

**Macromitrium piliferum* Schwaegr.

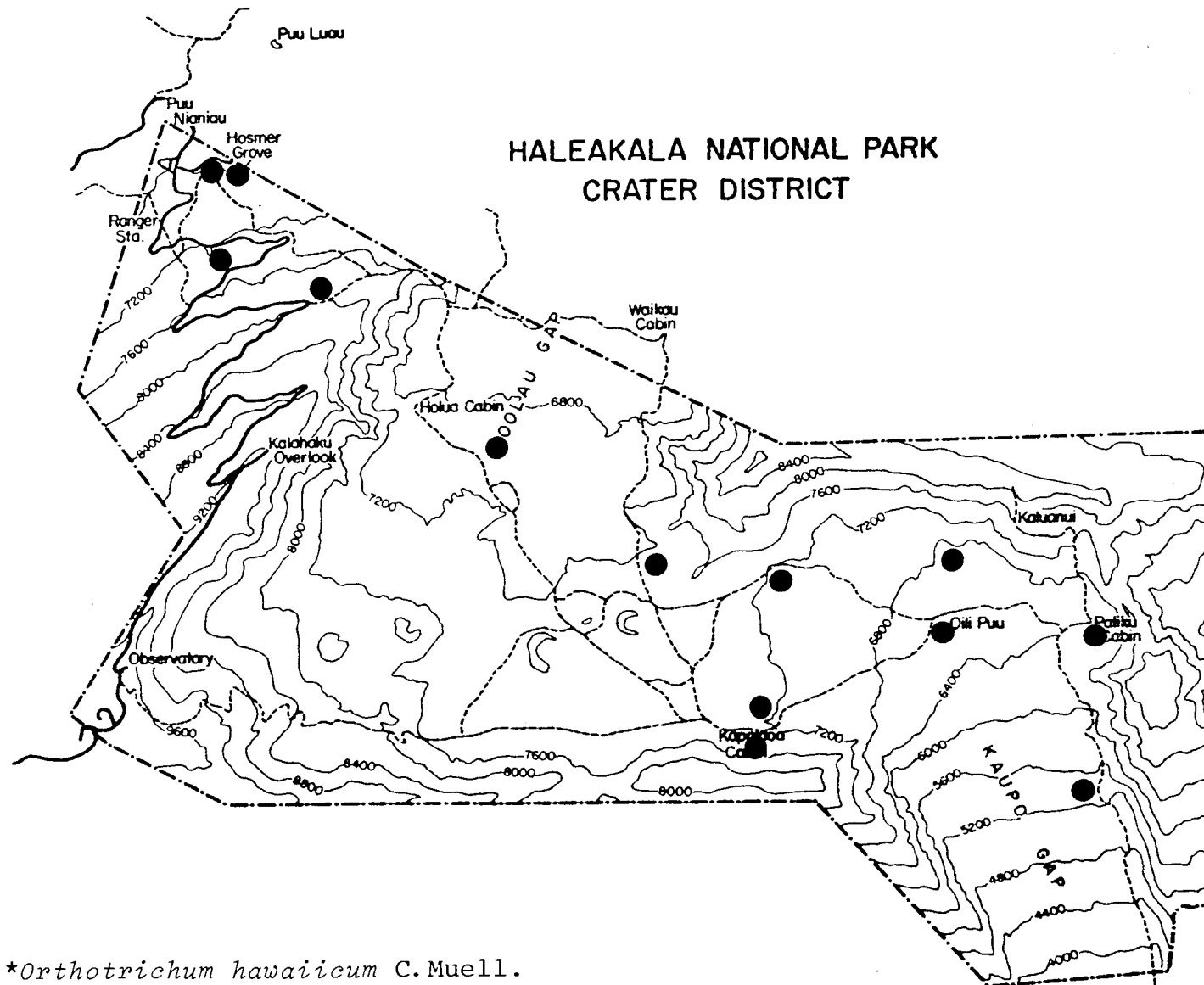
**Macromitrium piliferum* Schwaegr.

A detailed topographic map of the Haleakala National Park Crater District. The map features contour lines indicating elevation, with labels such as 2000, 4000, 6000, 8000, and 9000 feet. Key locations and landmarks include:

- Trails:** Marked with dashed lines, including the Haleakala Trail, Koolau Trail, and others.
- Cabins:** Waikau Cabin, Koolau Cabin, Kapiolua Cabin, and others.
- Observatory:** Located near the bottom right of the map.
- Overlook:** Kalanianaʻohi Overlook.
- Other Features:** Ranger Site, Hosmer Grove, and various peaks like Puu Luau and Puu Nianiau.

 A prominent black dot is located in the central part of the map, near the Koolau Cabin area. The map is oriented with North at the top.

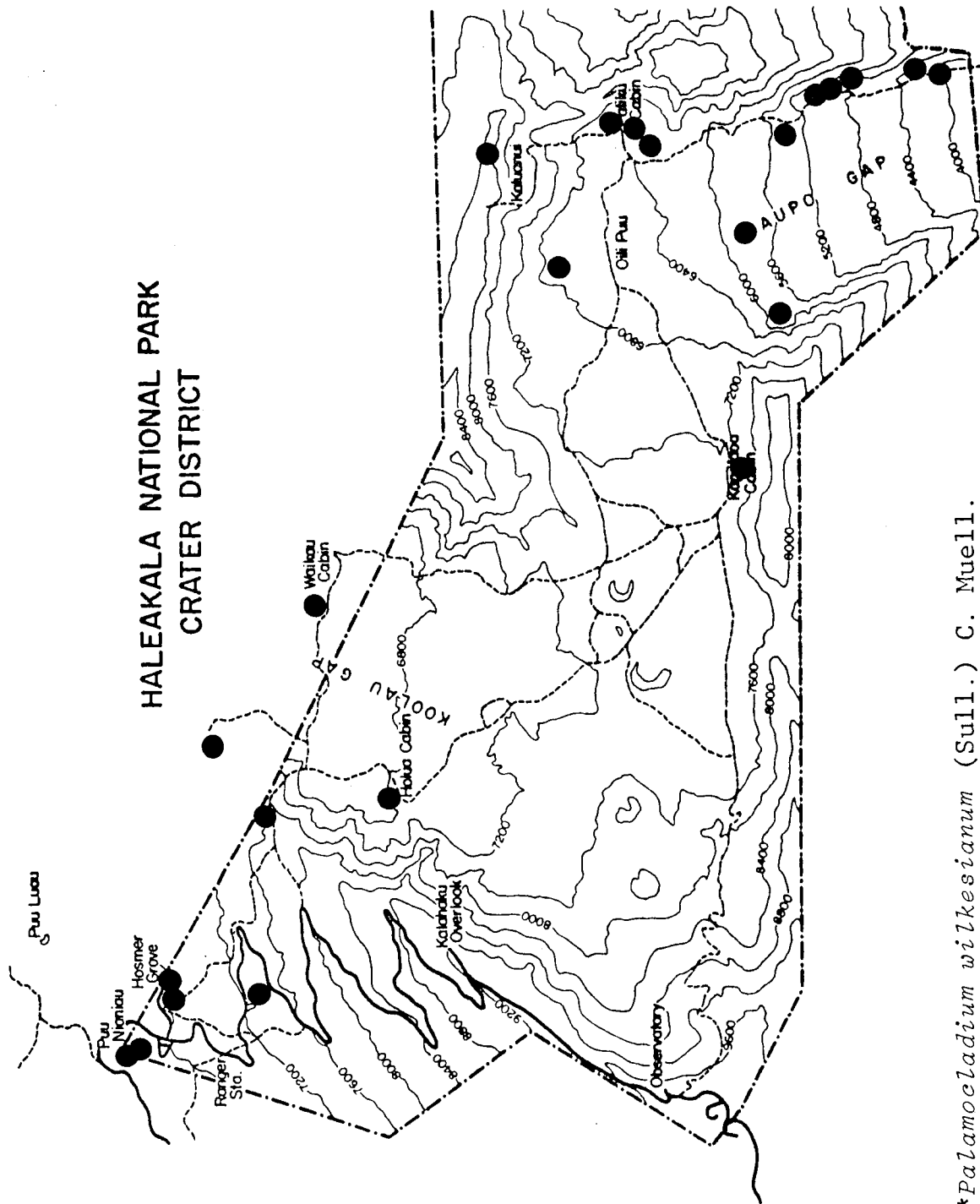
Orthotrichum diaphanum Brid.



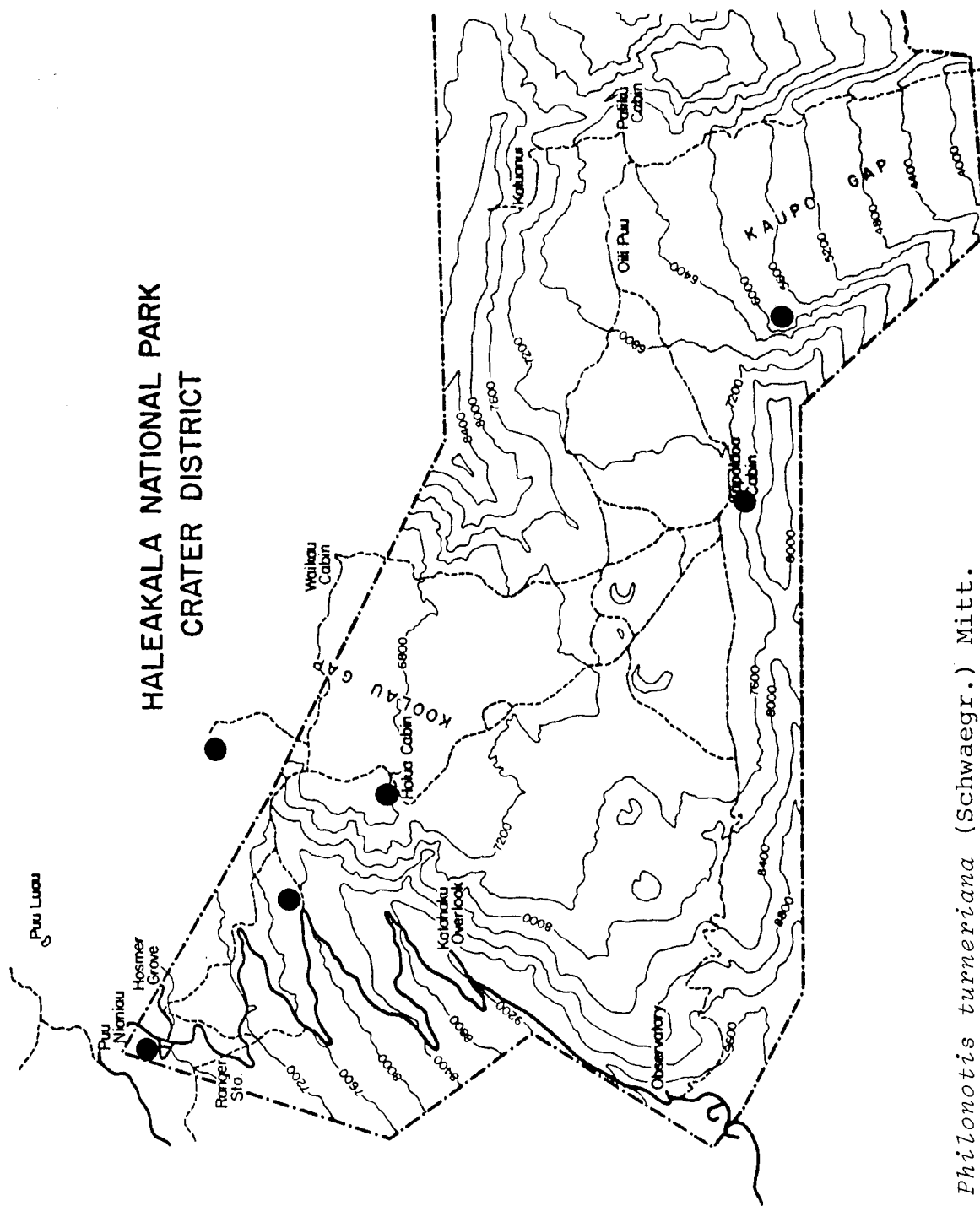
**Orthotrichum hawaiiicum* C. Muell.

[illegible]

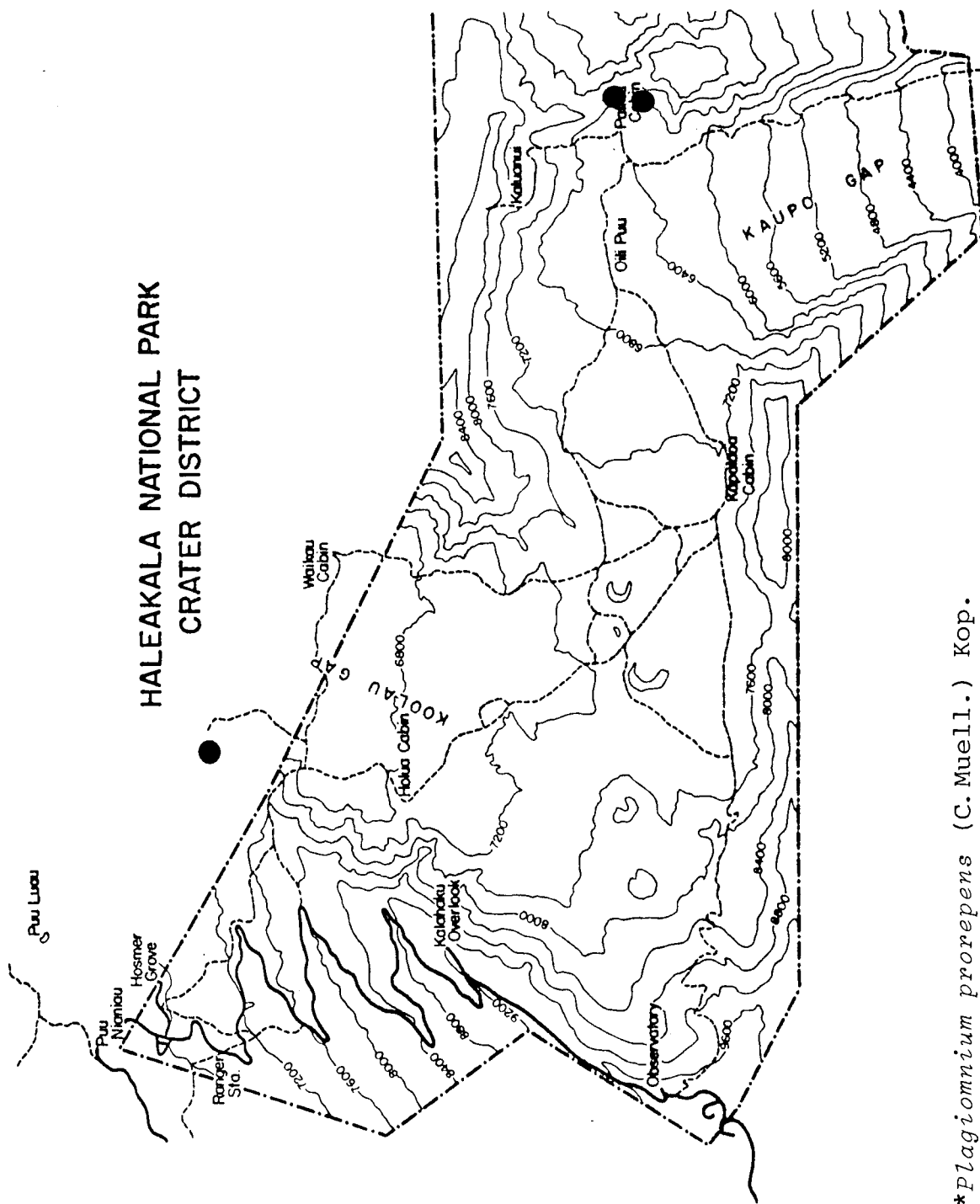
**Orthotrichum hillebrandii* C. Muell.



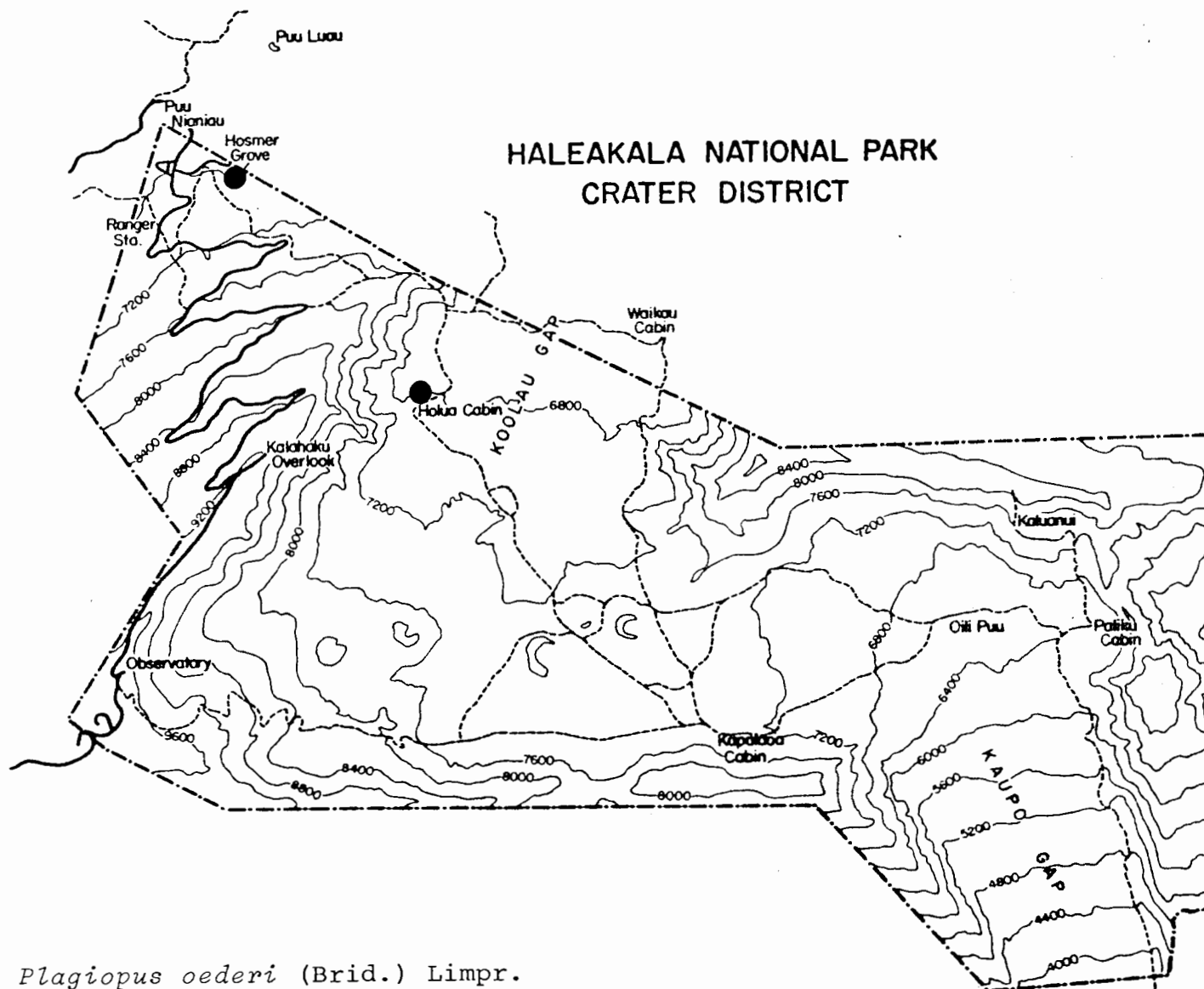
**Palamocladium wilkesianum* (Sull.) C. Muell.



Philonotis turneriana (Schwaegr.) Mitt.

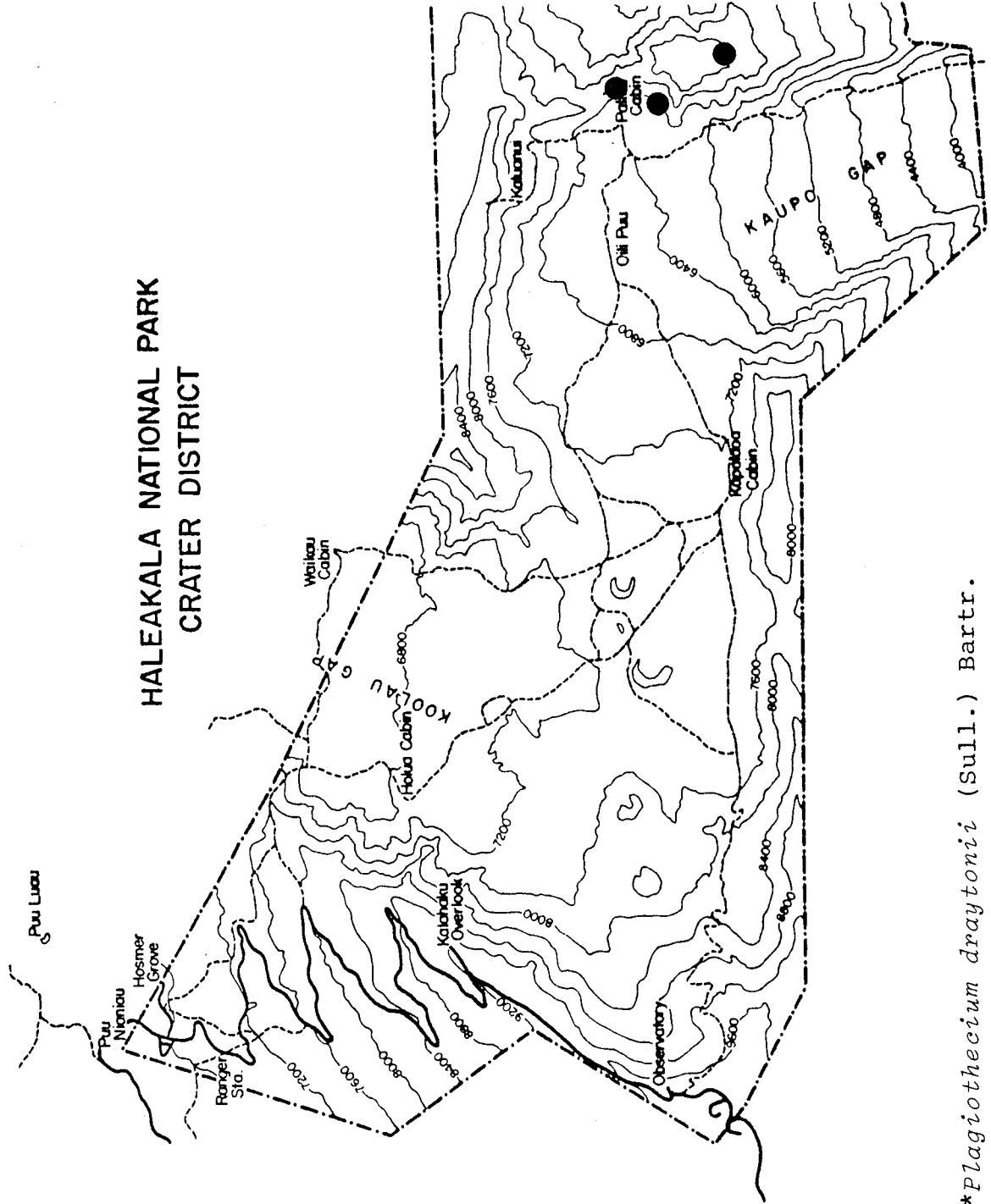


**Plagiomnium prorepens* (C. Muell.) Kop.



Plagiopus oederi (Brid.) Limpr.

HALEAKALA NATIONAL PARK CRATER DISTRICT



**Plagiothecium draytonii* (Sull.) Bartr.

A detailed topographic map of Haleakala National Park, Crater District. The map shows the rugged terrain of Haleakala, with numerous contour lines indicating elevation. Key features include:

- Trails:** Several trails are marked with dashed lines, including the main trail from the Visitor Center to the summit, and various side trails.
- Landmarks:**
 - Summit:** The highest point, labeled 'KAUPO'.
 - Crater Rim:** The rim of the Haleakala crater, with various peaks and ridges.
 - Observatory:** Located on the eastern slope of the crater.
 - Overlook:** A viewing area on the western slope.
 - Cabins:** Several cabins are marked, including 'Waikau Cabin', 'Koolau Cabin', and 'Kahala Cabin'.
 - Other Features:** 'Puu Lulu', 'Hosmer Grove', 'Ranger Sta.', and 'Kalaniana' are also labeled.
- Elevation:** Contour lines are labeled with elevations such as 2000, 4000, 6000, 8000, and 10000 feet.

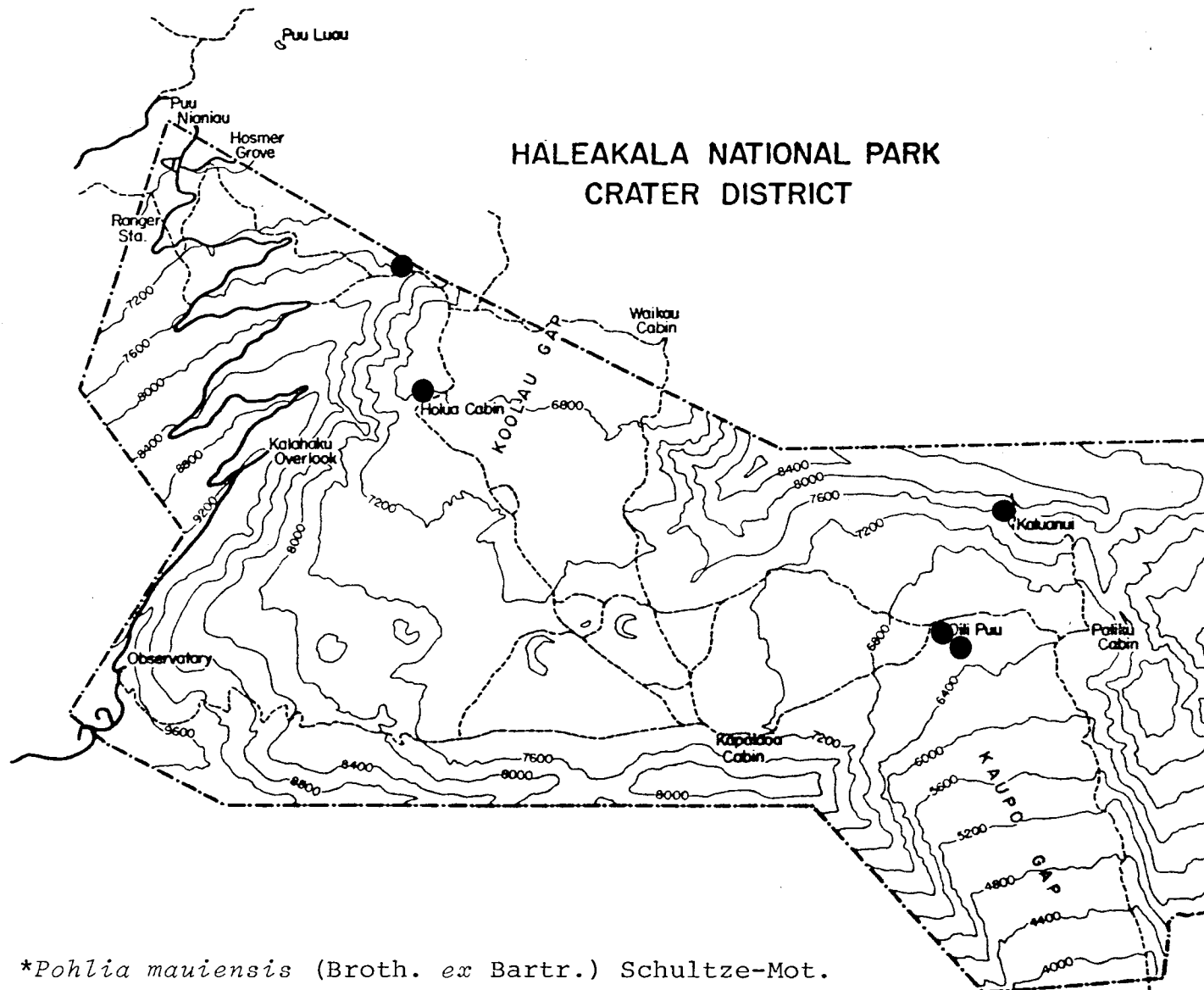
The map is oriented with the summit at the top and the Visitor Center at the bottom. The title 'HALEAKALA NATIONAL PARK CRATER DISTRICT' is prominently displayed in the upper left corner.

Pogonatum tahitense Besch.

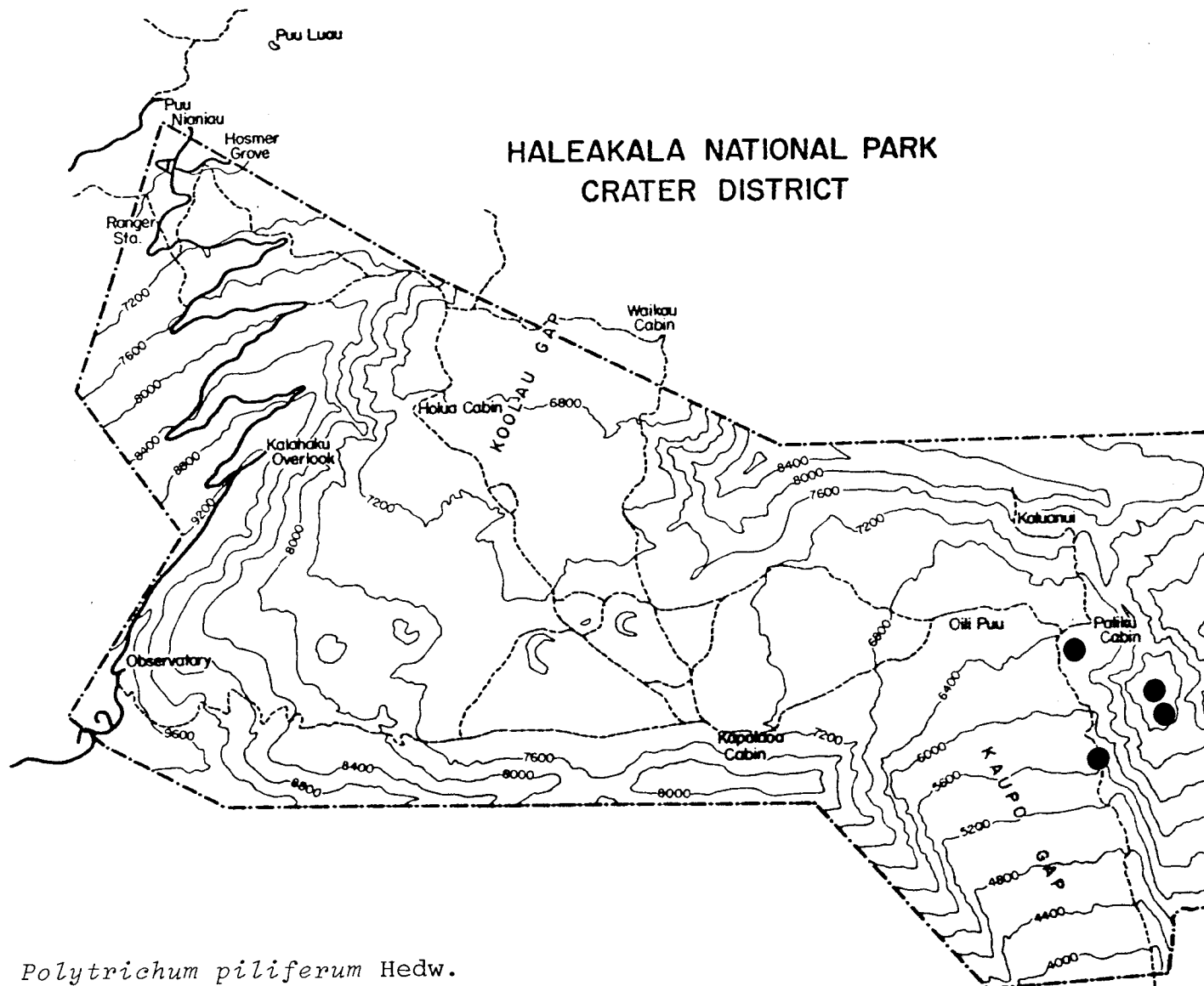
A detailed topographic map of the Haleakala National Park Crater District. The map features numerous contour lines indicating elevation, with labels such as 6000, 7000, 8000, 9000, 10000, and 11000 feet. Key locations and landmarks include:

- Peaks and High Points:** Puu Luau, Puu Nianiau, Oili Pui, and the central peak of Haleakala.
- Trails:** Several trails are marked with dashed lines, including the Haleakala Trail, the Koolau Trail, and the Waikou Trail.
- Cabins:** Locations for Waikou Cabin, Koolau Cabin, and Koolau Cabin are marked.
- Other Features:** An Observatory is located near the bottom left. A 'Ranger Sta.' is marked near the bottom left. A 'Hosmer Grove' is located near the bottom left. A 'Kalahau Overlook' is marked near the bottom center.
- Geographic Labels:** The names 'KAUAI' and 'KAUPO' are visible on the map, indicating the islands to the west and east, respectively.

Pohlia cruda (Hedw.) Lindb.



**Pohlia mauiensis* (Broth. ex Bartr.) Schultze-Mot.

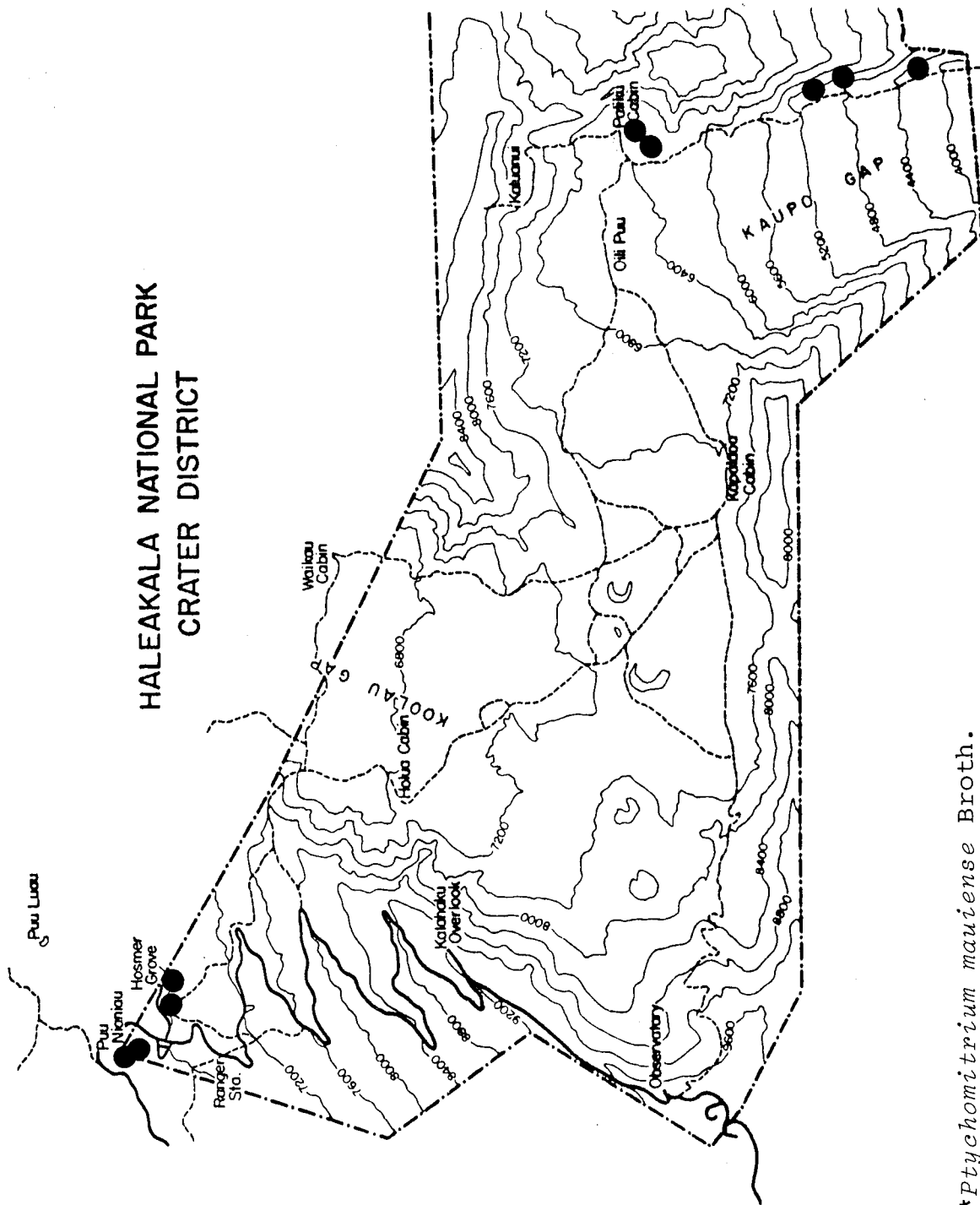


Polytrichum piliferum Hedw.

A detailed topographic map of the Haleakala National Park Crater District. The map features numerous contour lines indicating elevation, with labels such as 4000, 4400, 4800, 5200, 5600, 6000, 6400, 6800, 7200, 7600, 8000, 8400, 8800, and 9200. Key locations and landmarks include Puu Luau, Puu Nianiau, Hosmer Grove, Ranger Sta., Waiikau Cabin, Holua Cabin, Koolau Gap, Kalahaku Overlook, Observatory, Koolau, Oili Puu, Paliku Cabin, Kapiolaka Cabin, and Kaupo. The map also shows various trails and roads, some marked with dashed lines. The title 'HALEAKALA NATIONAL PARK CRATER DISTRICT' is prominently displayed in the upper center.

Pseudosymblepharis mauiensis (C. Muell.) Broth.

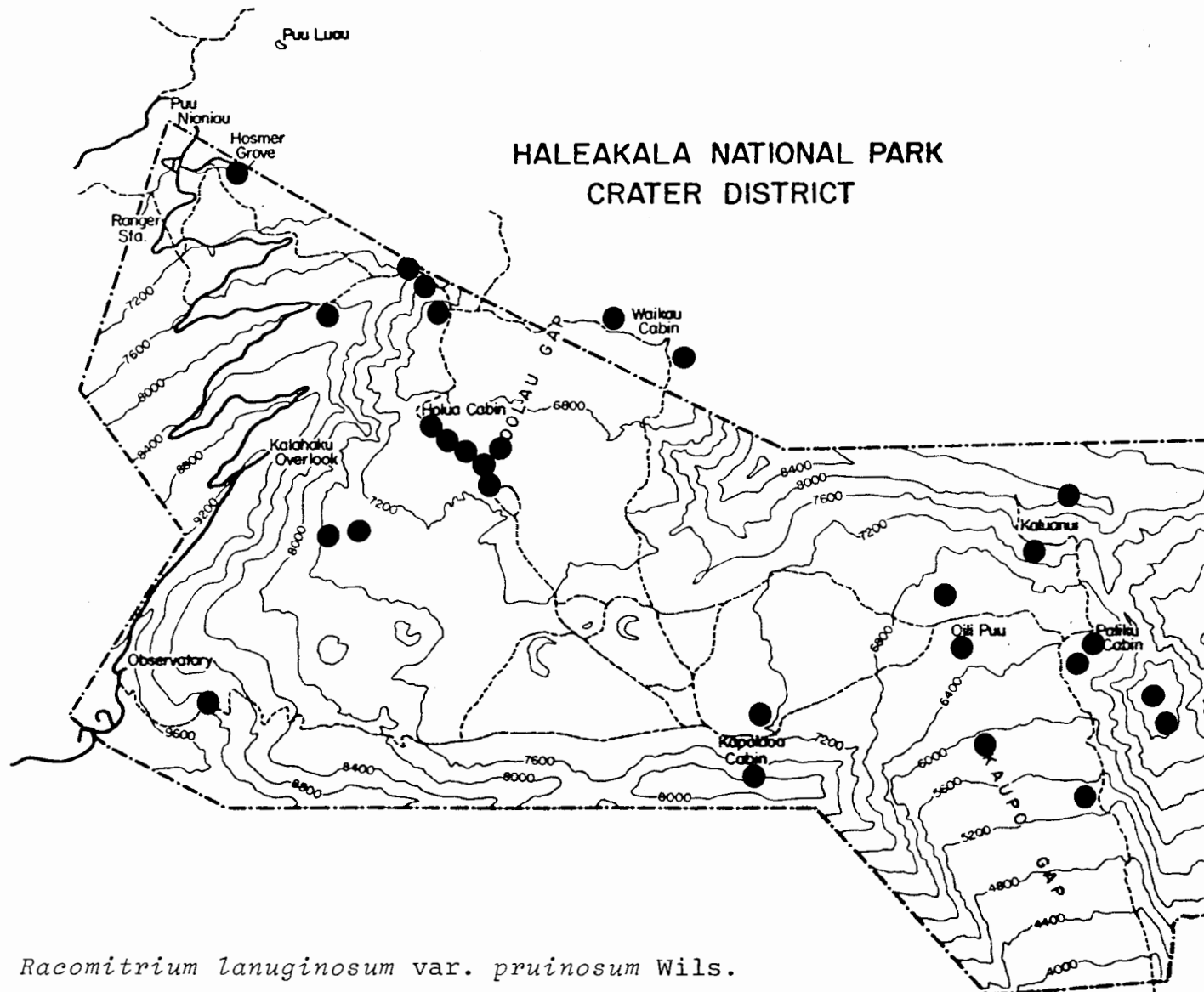
Pseudosymblepharis mauiensis (C. Muell.) Broth.



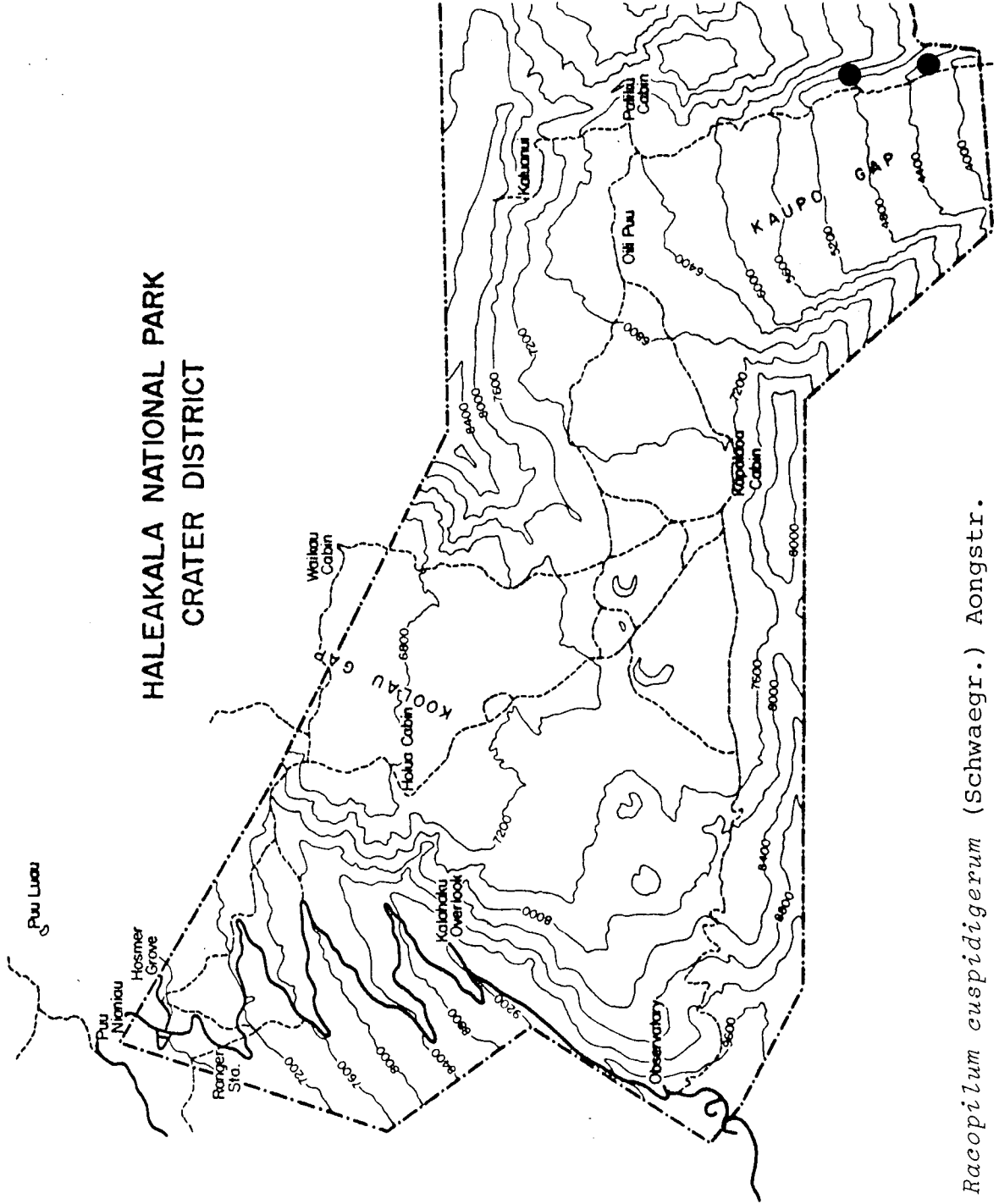
**Ptychomitrium mauiense* Broth.

[illegible]

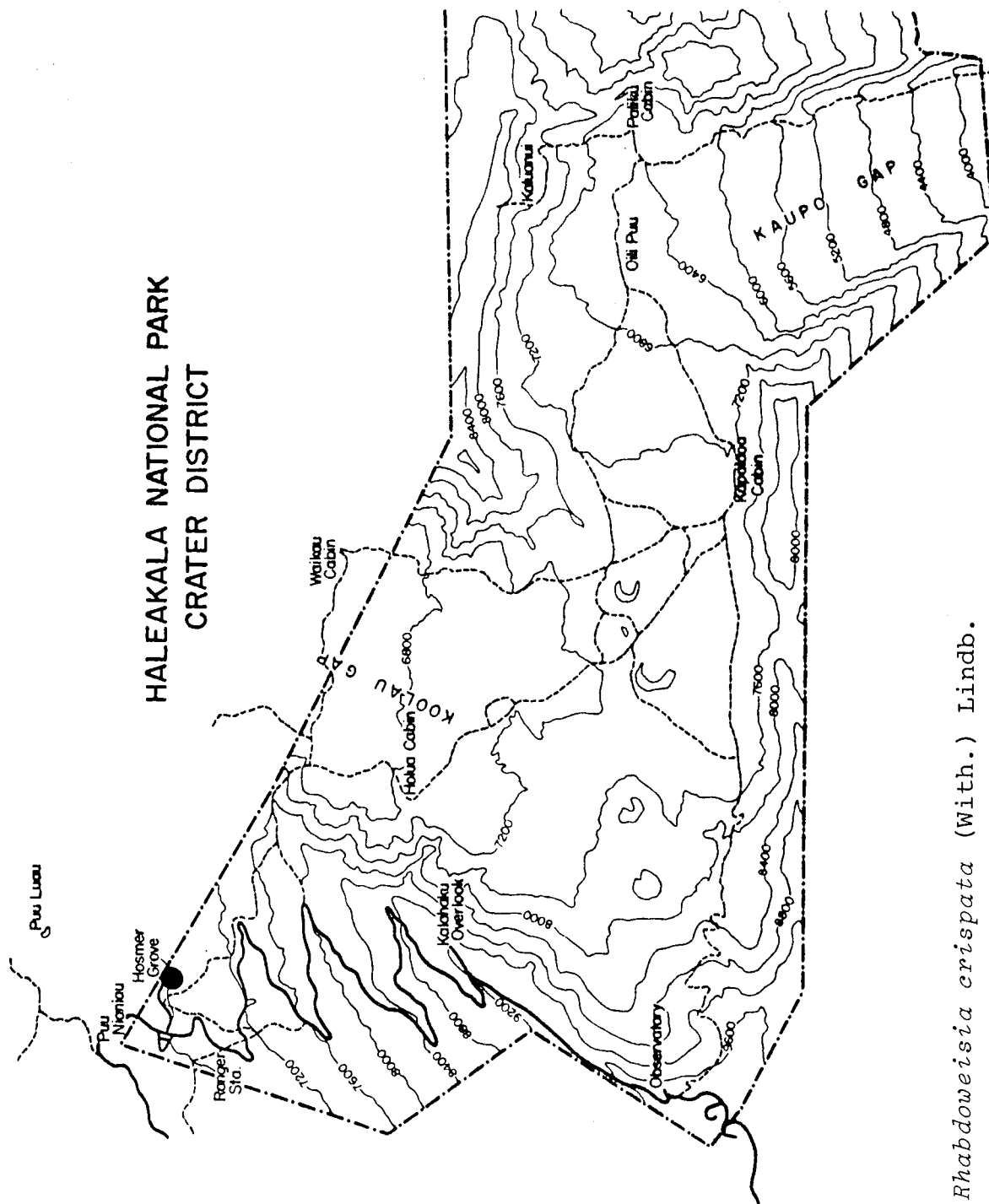
Racomitrium crispulum (Hook. f. & Wils.)
Hook. f. & Wils.



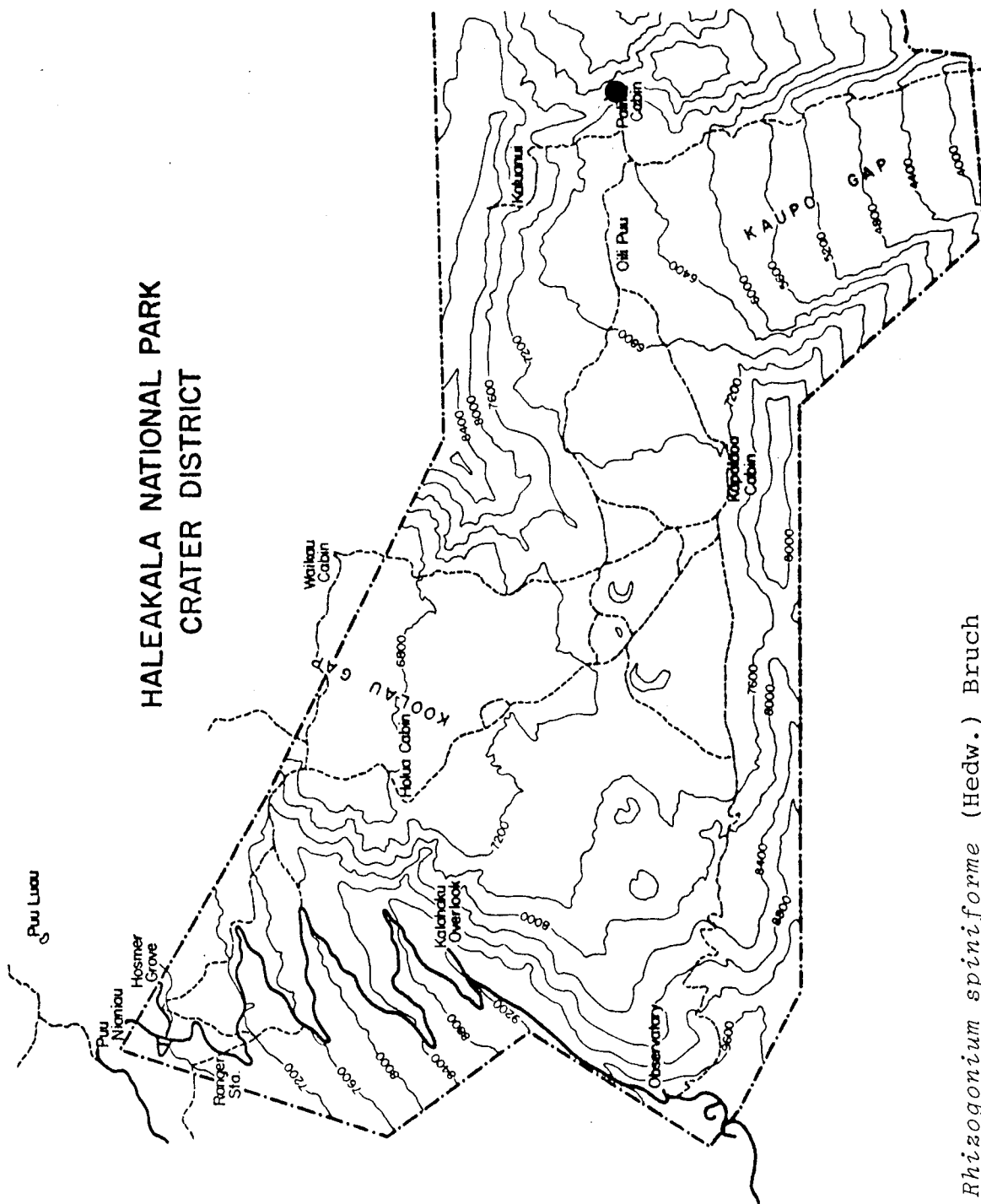
HALEAKALA NATIONAL PARK CRATER DISTRICT



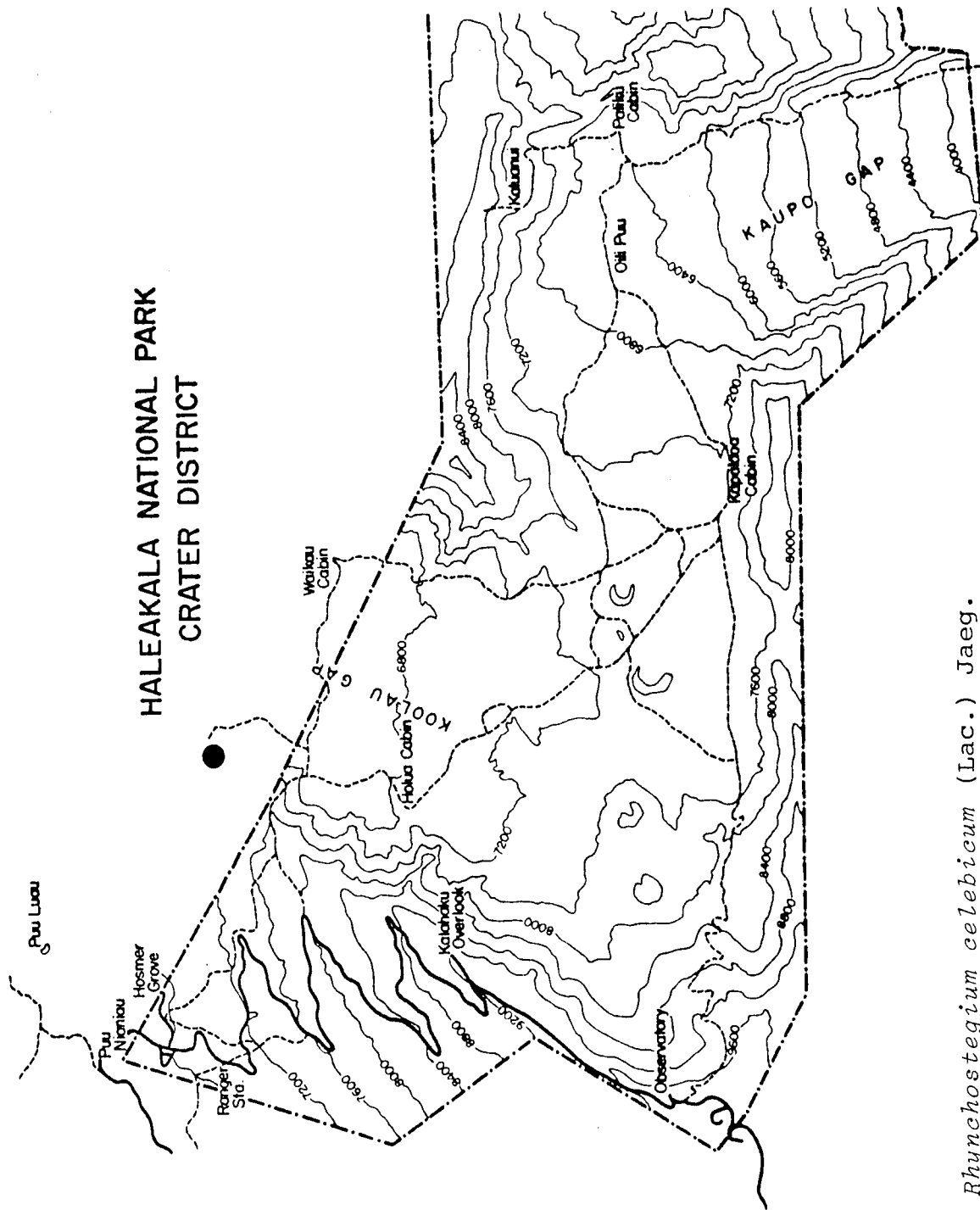
Racopilum cuspidigerum (Schwaegr.) Aongstr.



Rhabdoweisia crispata (With.) Lindb.



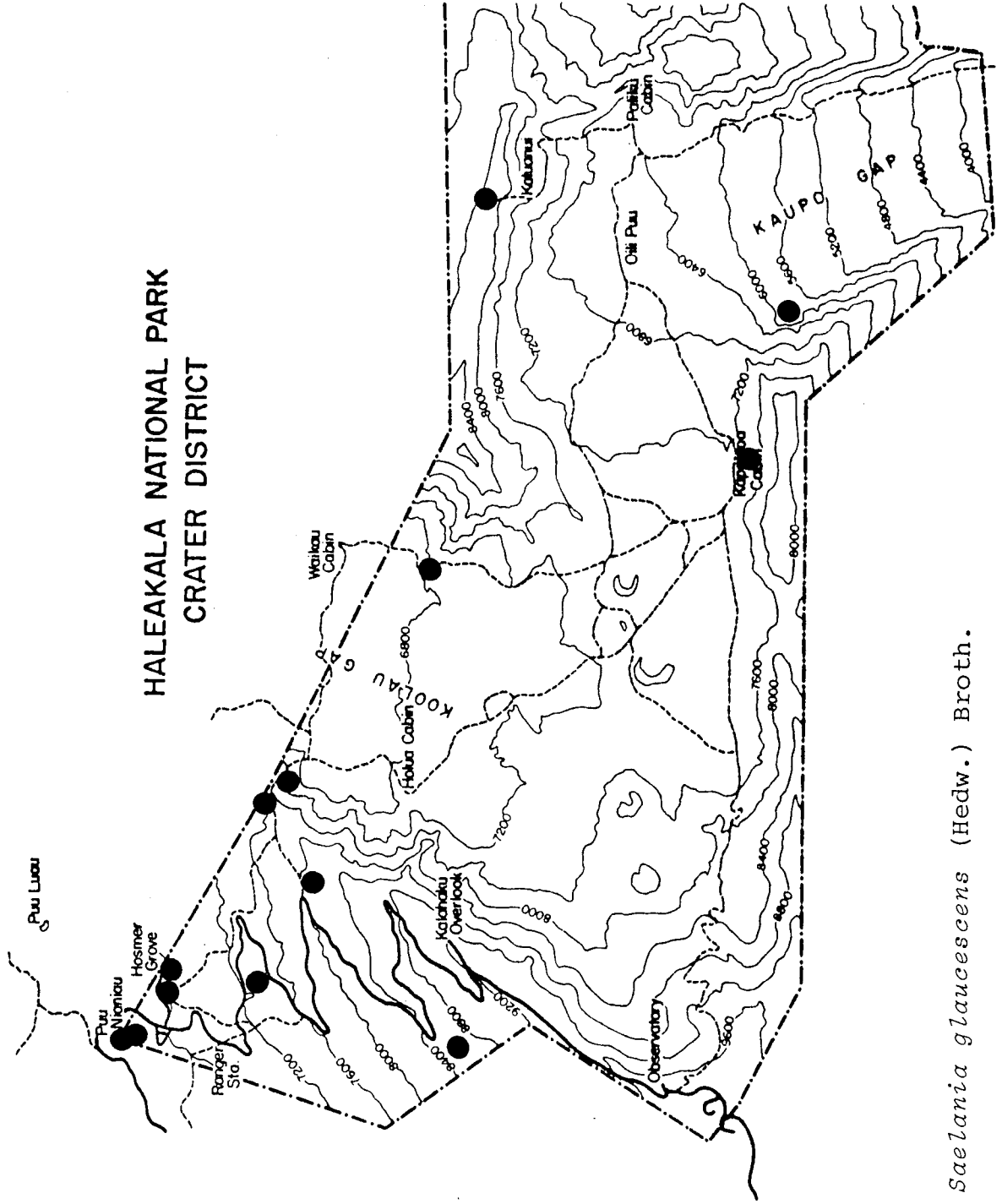
Rhizogonium spiniforme (Hedw.) Bruch



Rhynchostegium celebicum (Lac.) Jaeg.

[illegible]

**Rhynchostegium selaginellifolium* C. Muell.



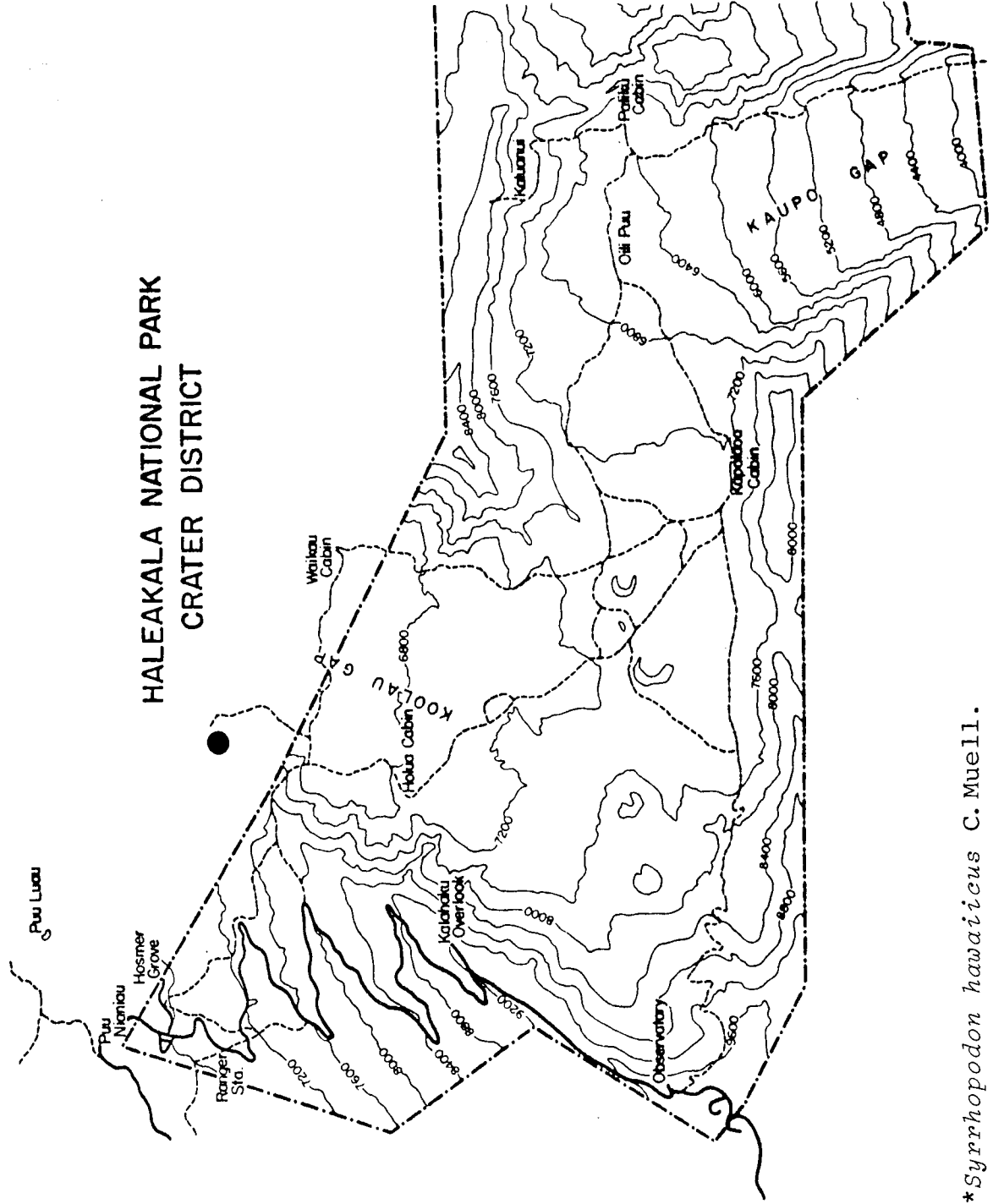
Saelania glaucescens (Hedw.) Broth.

[illegible]

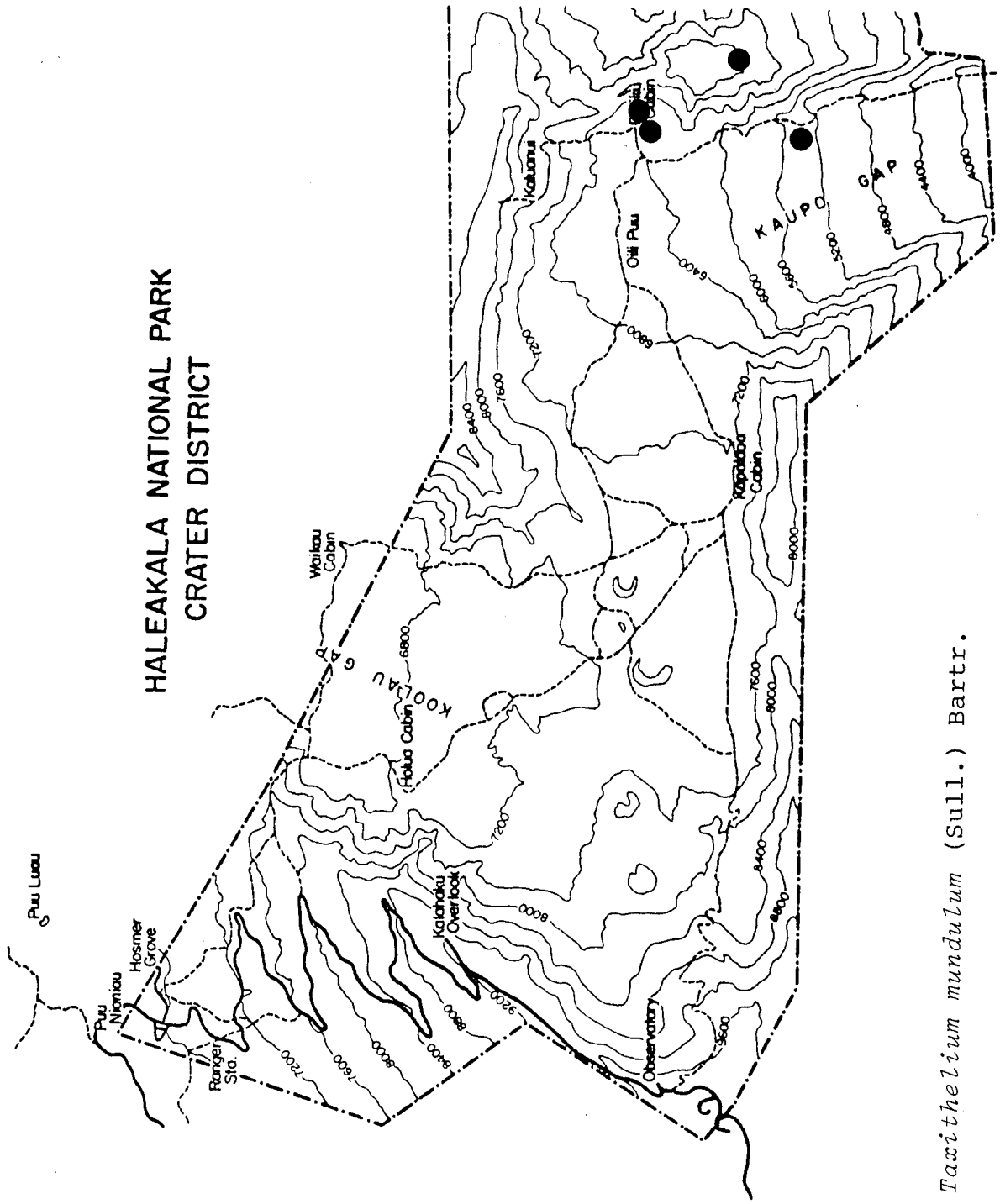
**Sciariomium tricostratum* (Sull.) Mitt.

A detailed topographic map of the Haleakala National Park Crater District. The map shows the rugged terrain of Haleakala, with major peaks like Puu Luau and Puu Nianiau. Elevation contours are marked at intervals of 200 to 1000 feet. Key locations include the Ranger Sta., Hosmer Grove, Kalanikulu Overlook, and several cabins (Waikolu, Holua, Kipahulu, Pihia). The map also shows the Koolau and Kaupo gulches. Four black dots indicate the collection sites for *Sematophyllum hawaiiense* (Broth.) Broth. near the top of the mountain.

Sematophyllum hawaiiense (Broth.) Broth.

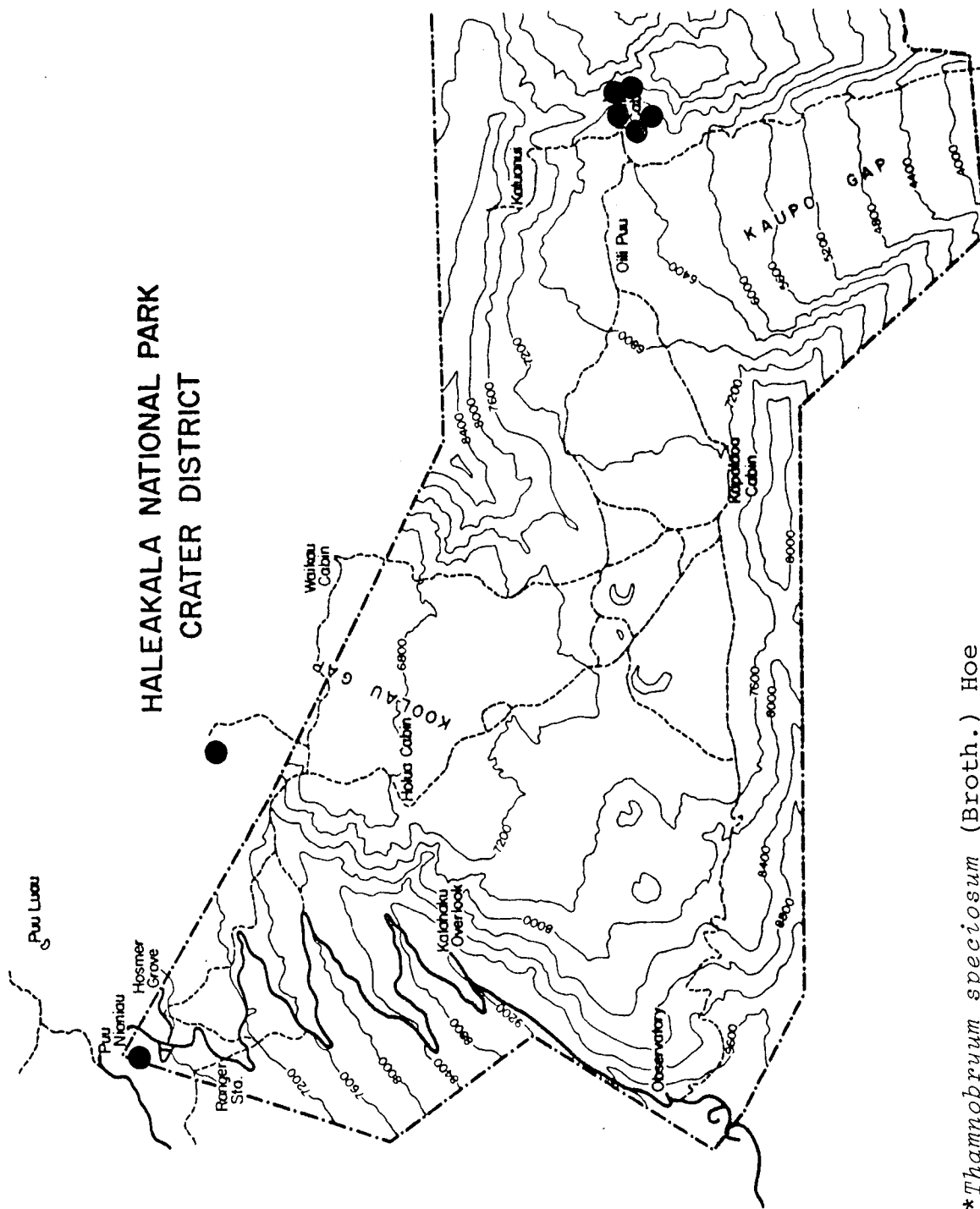


**Syrrhopodon hawaiiicus* C. Muell.

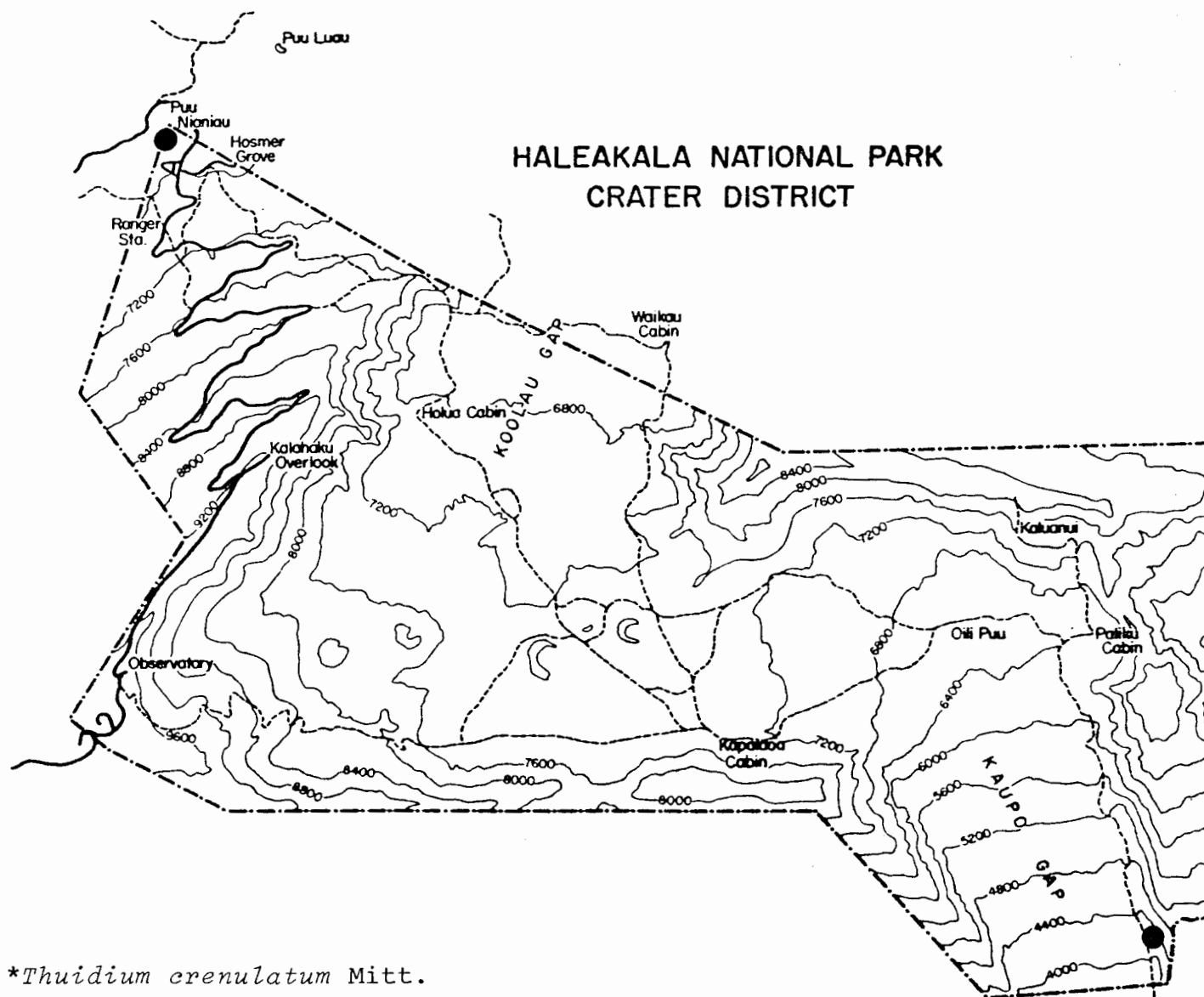


HALEAKALA NATIONAL PARK CRATER DISTRICT

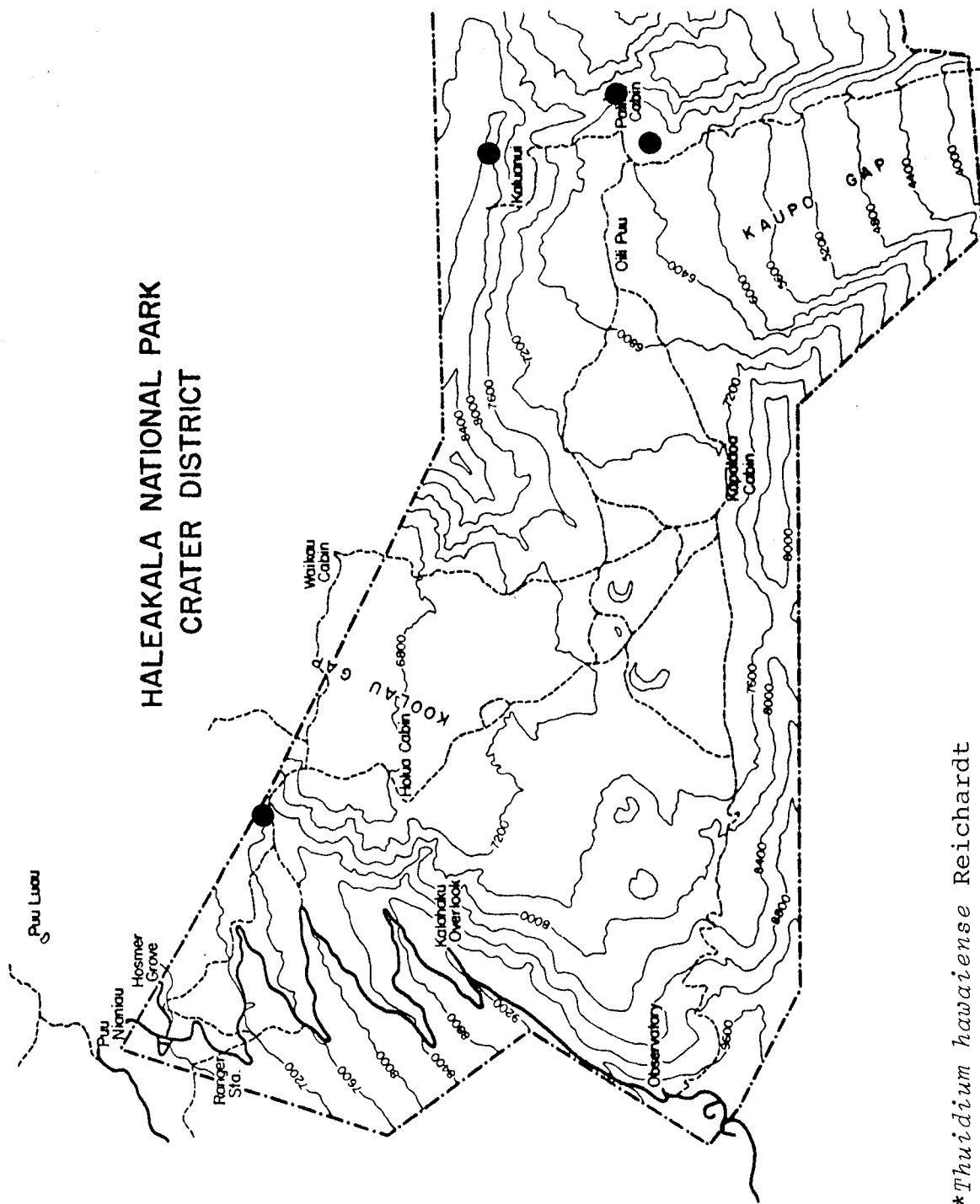
Taxithelium mundulum (Sull.) Bartr.



**Thamnobryum speciosum* (Broth.) Hoe



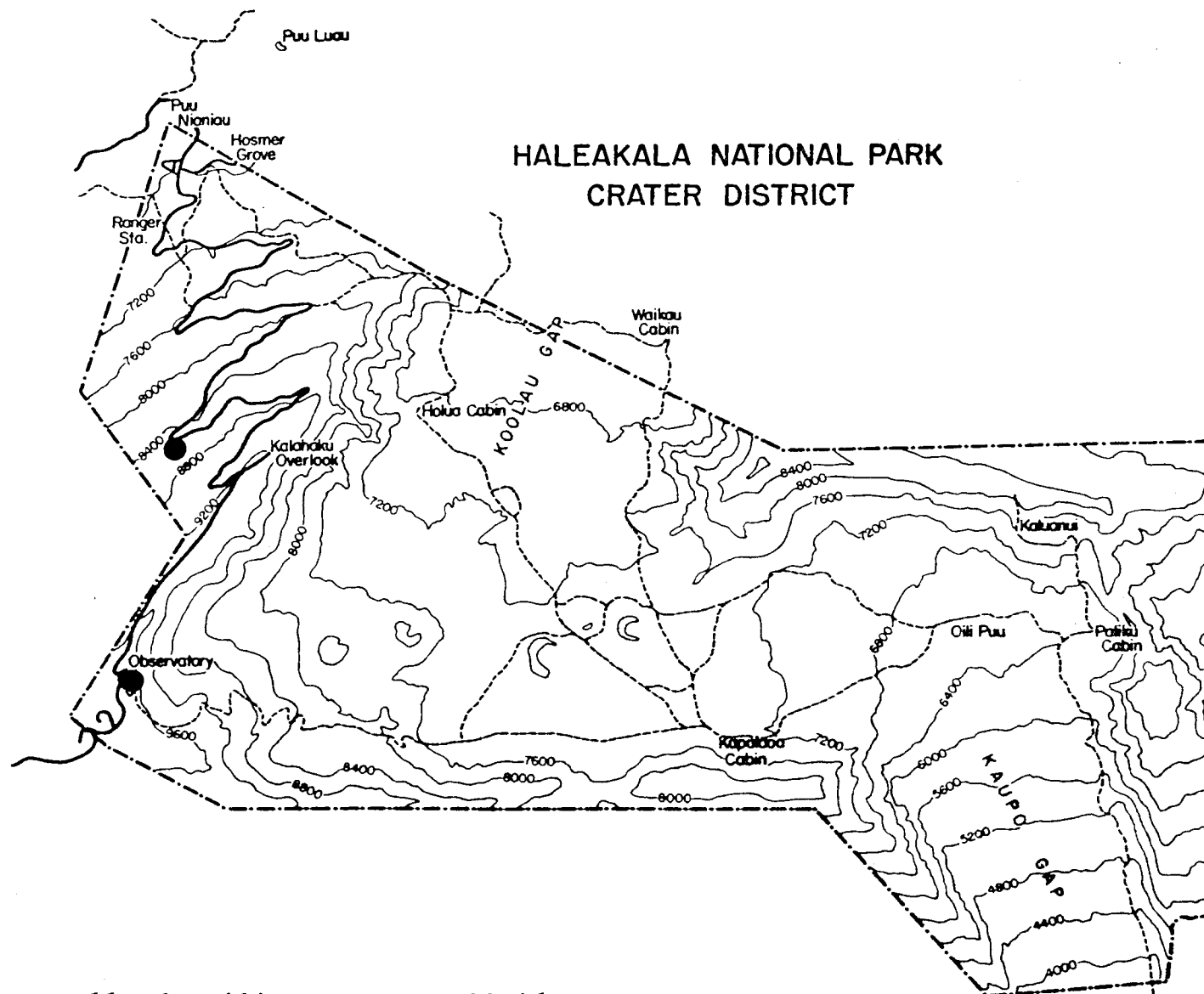
**Thuidium crenulatum* Mitt.



**Thuidium hawaiiense* Reichardt

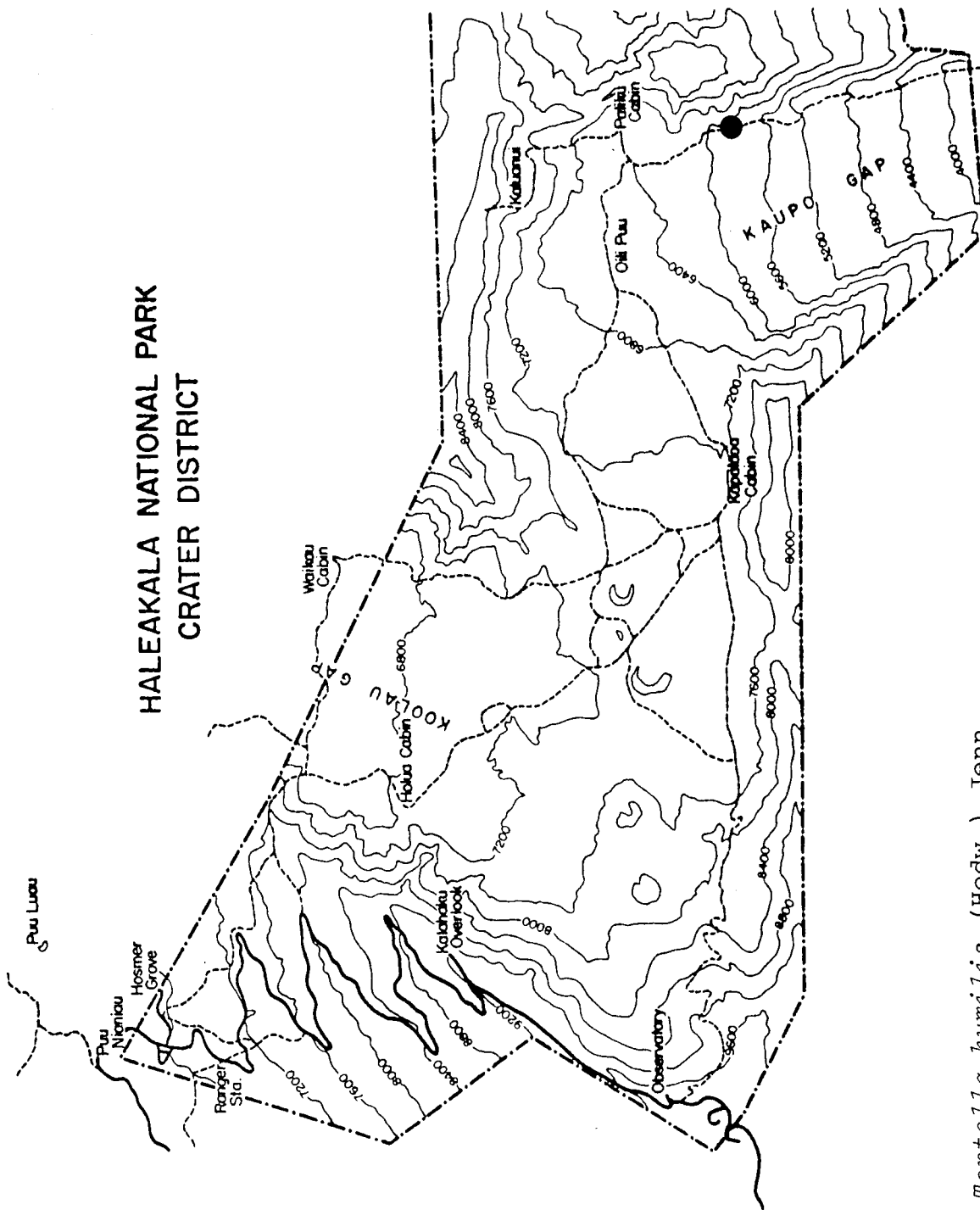
[illegible]

**Thuidium plicatum* Mitt.

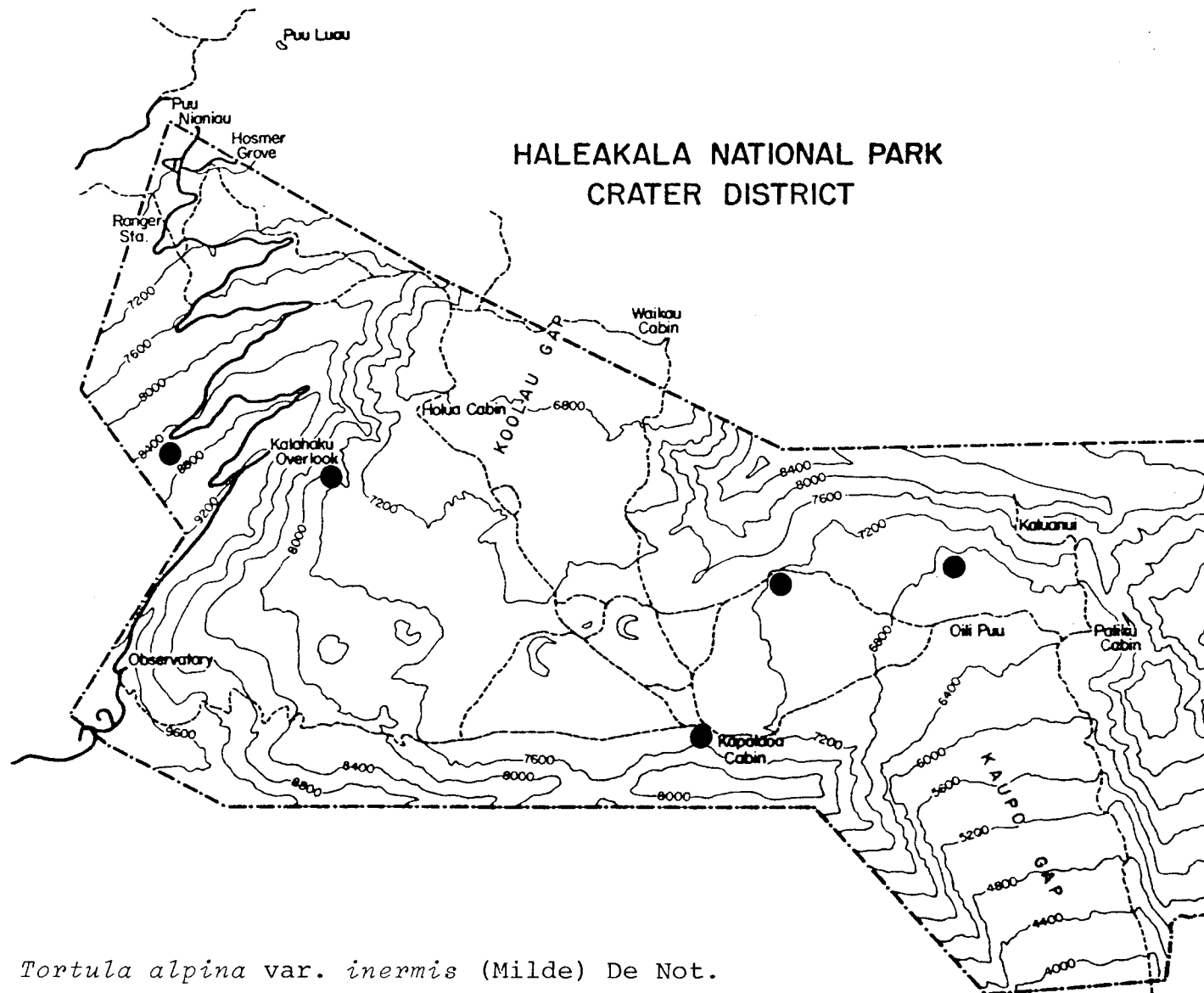


Tortella fragilis var. *tortelloides*
(Greene) Zander & Hoe

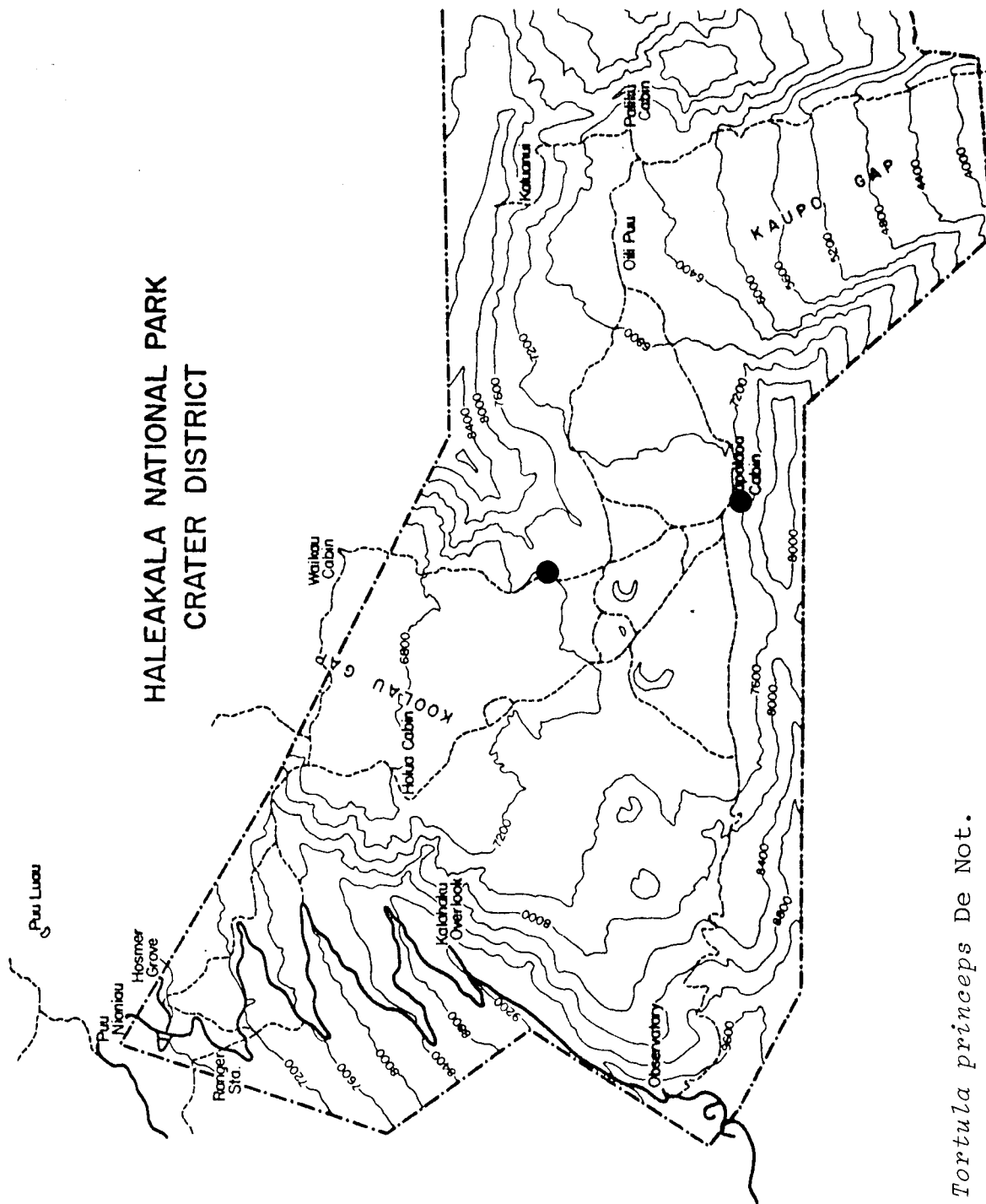
HALEAKALA NATIONAL PARK CRATER DISTRICT



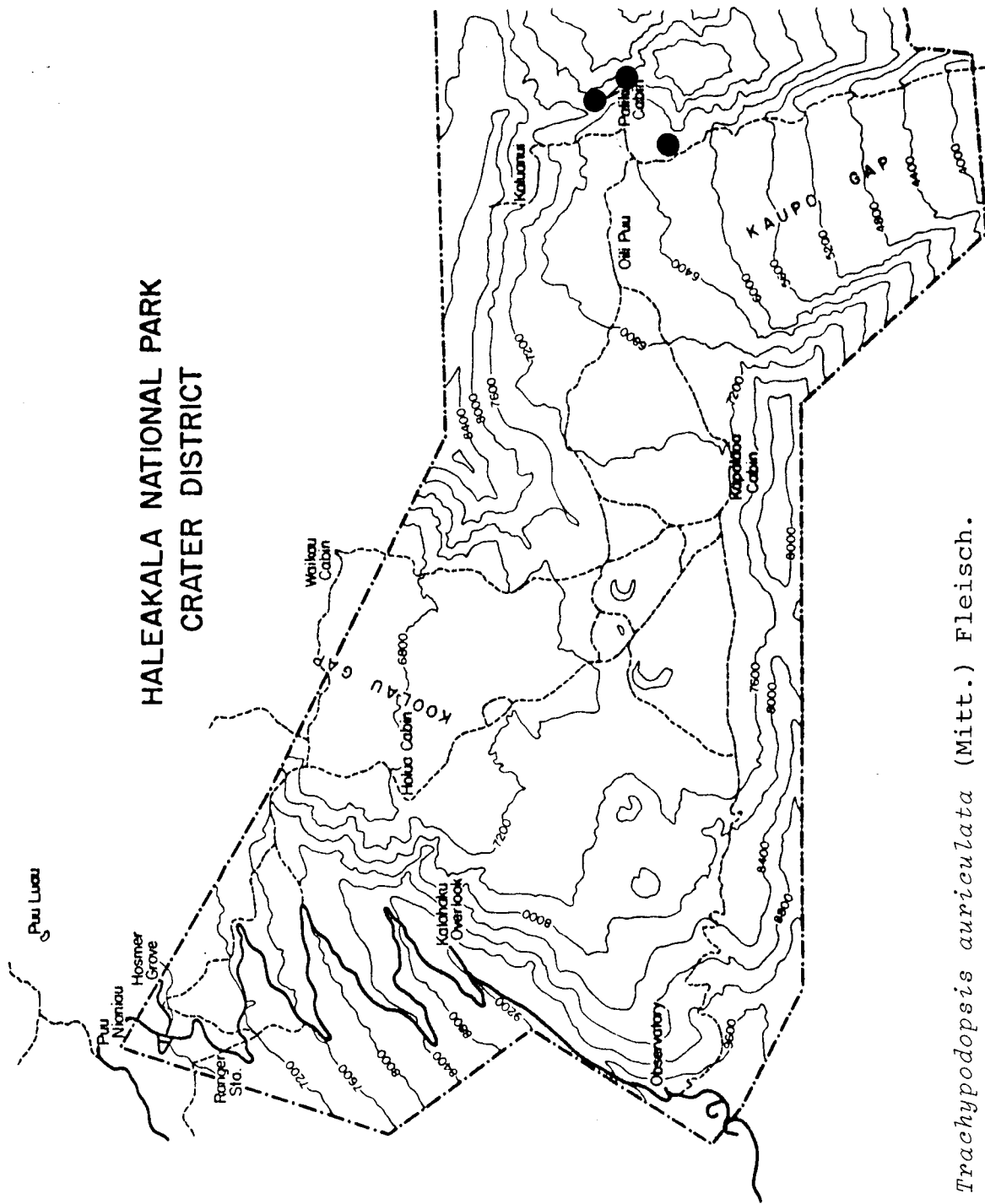
Tortella humilis (Hedw.) Jenn.



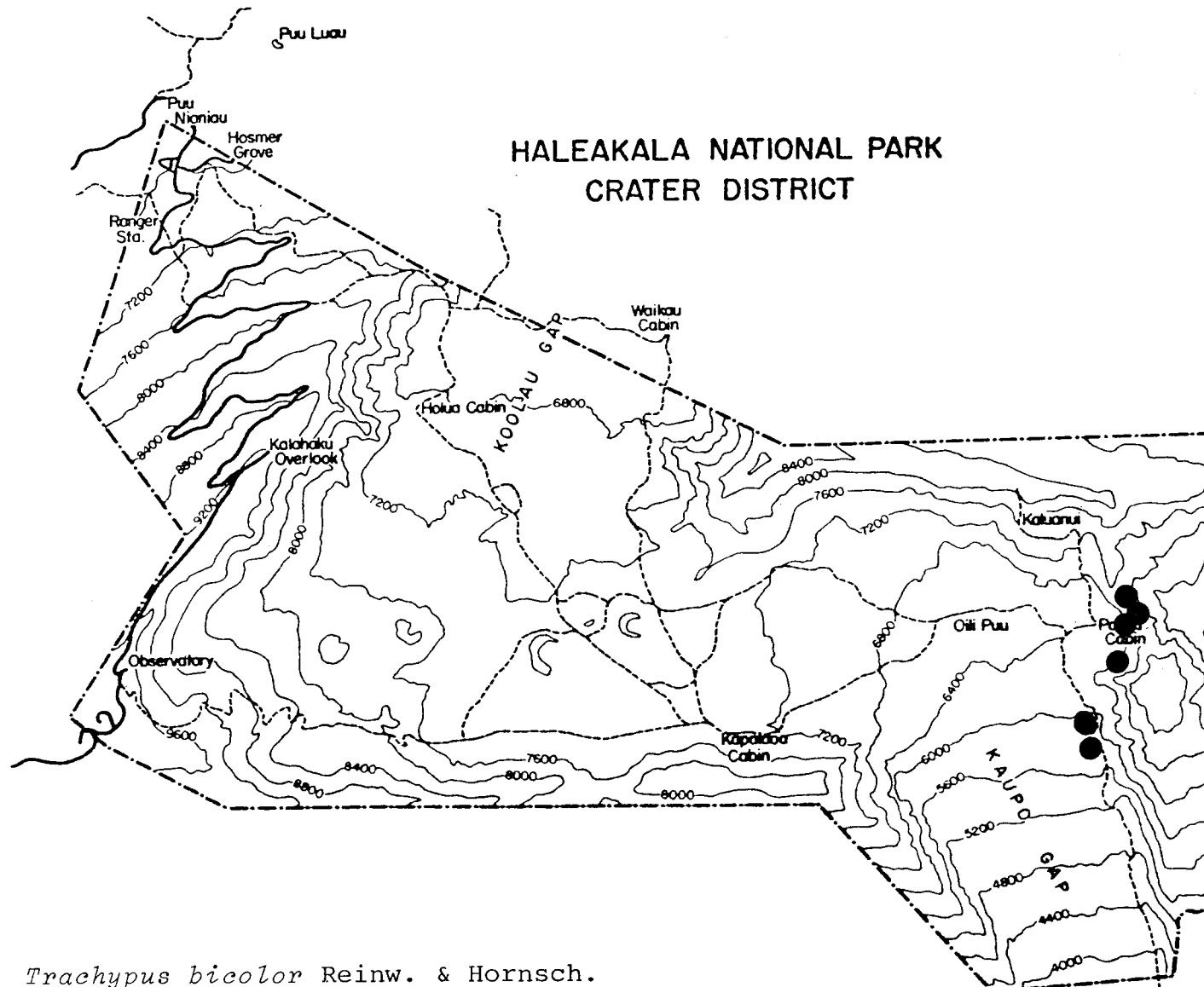
Tortula alpina var. *inermis* (Milde) De Not.



Tortula princeps De Not.

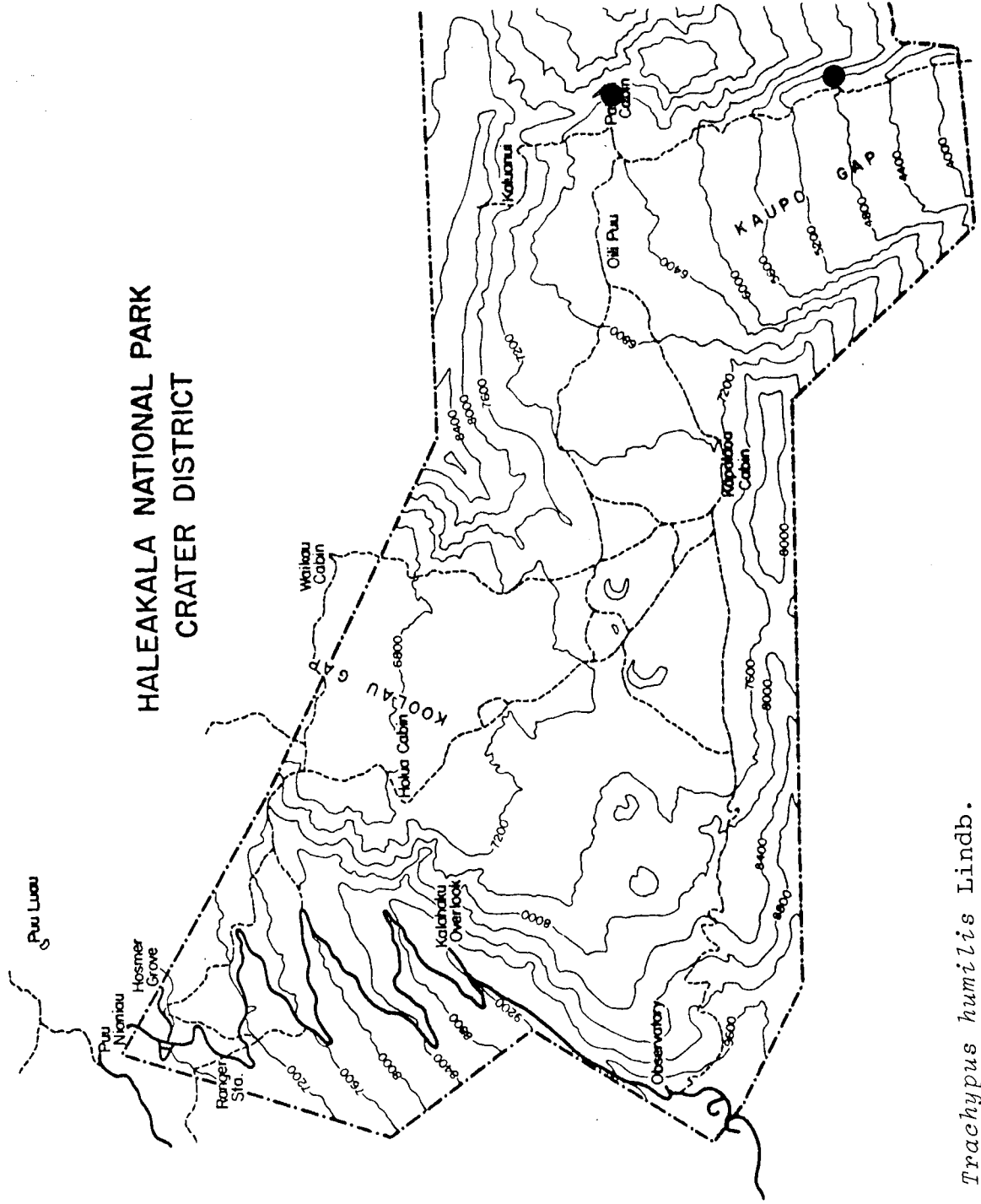


Trachypodopsis auriculata (Mitt.) Fleisch.

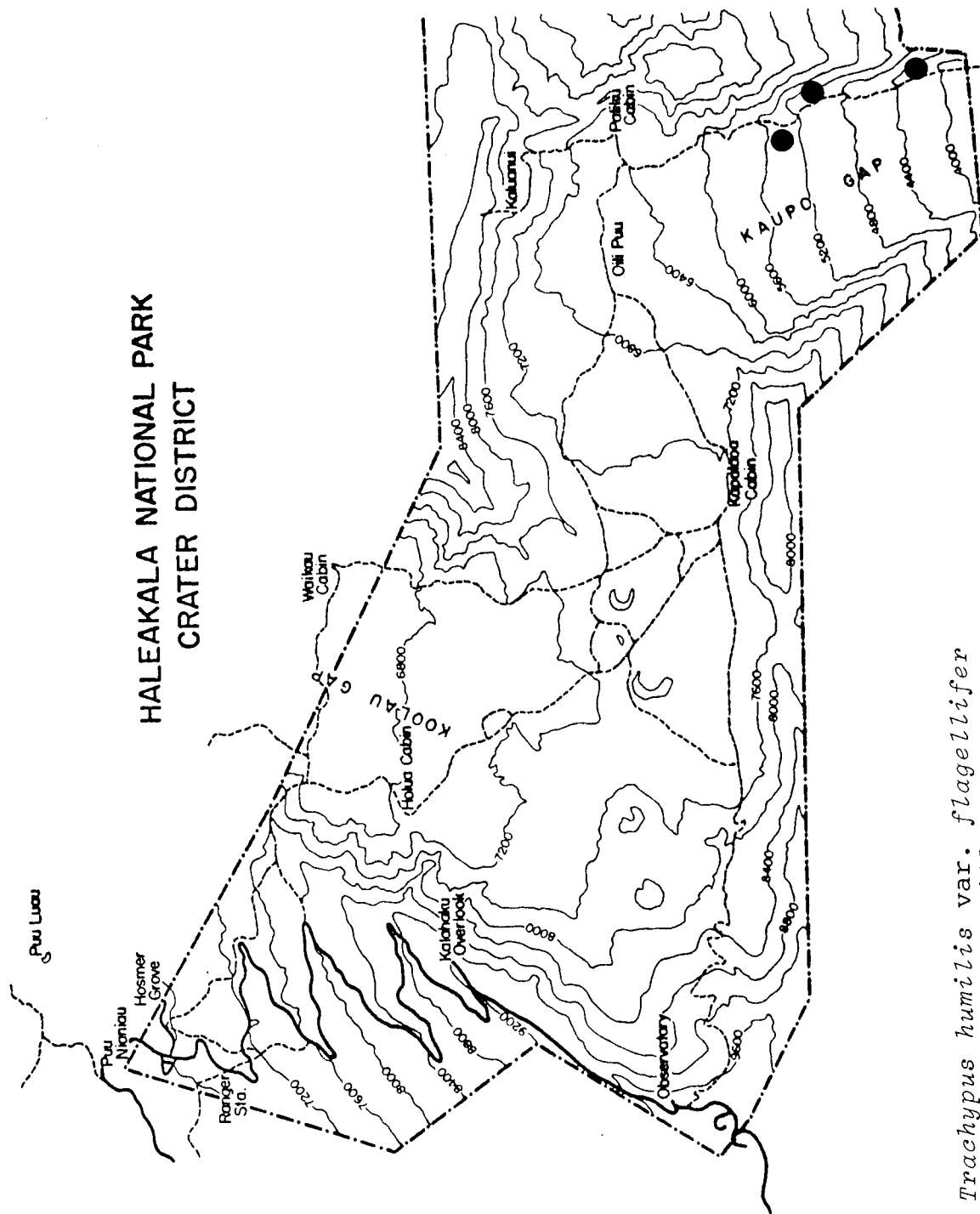


Trachypus bicolor Reinw. & Hornsch.

HALEAKALA NATIONAL PARK CRATER DISTRICT

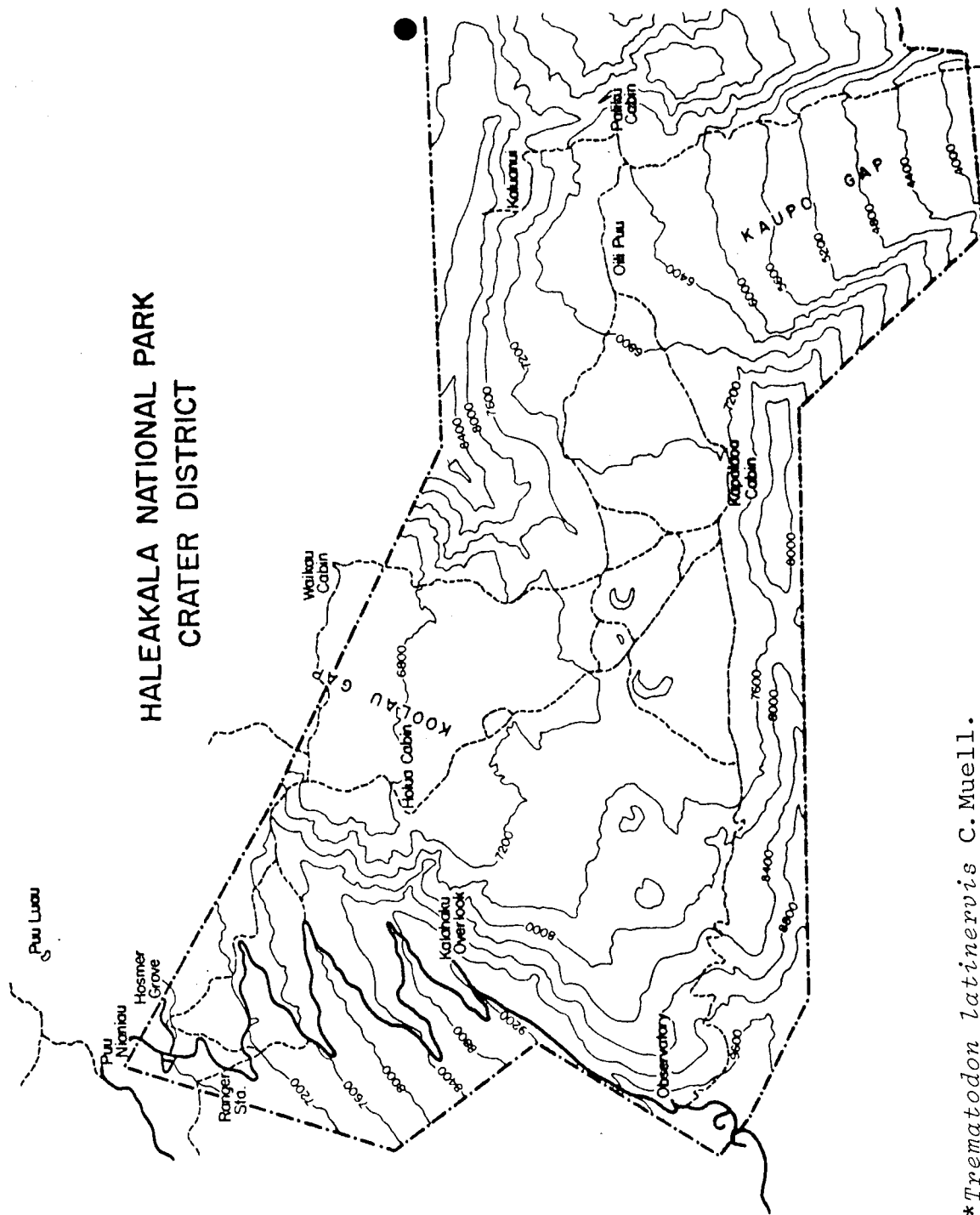


Trachypus humilis Lindb.

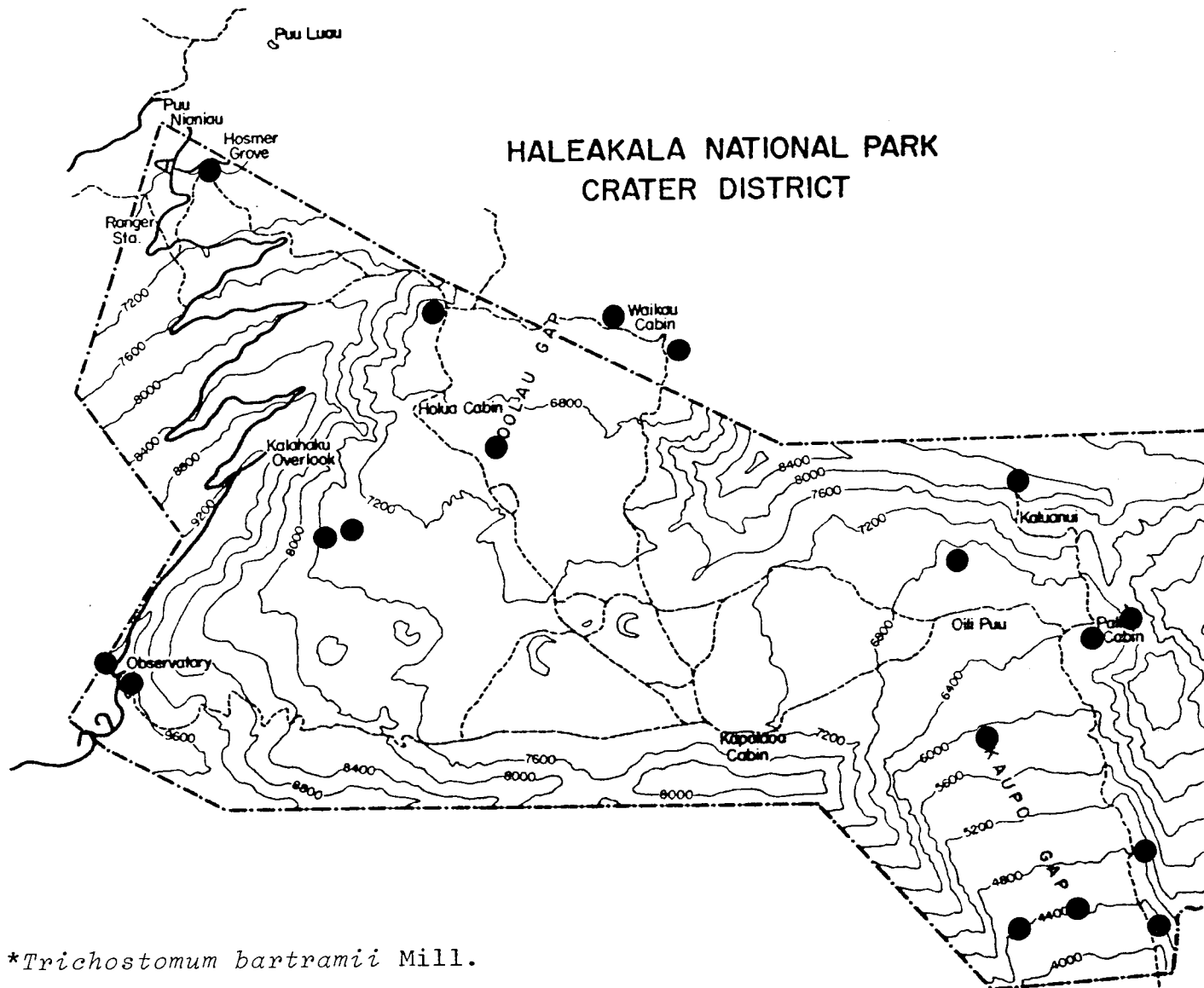


Trachypus humilis var. *flagellifer*
(Broth. ex Herz.) Mill.

HALEAKALA NATIONAL PARK CRATER DISTRICT

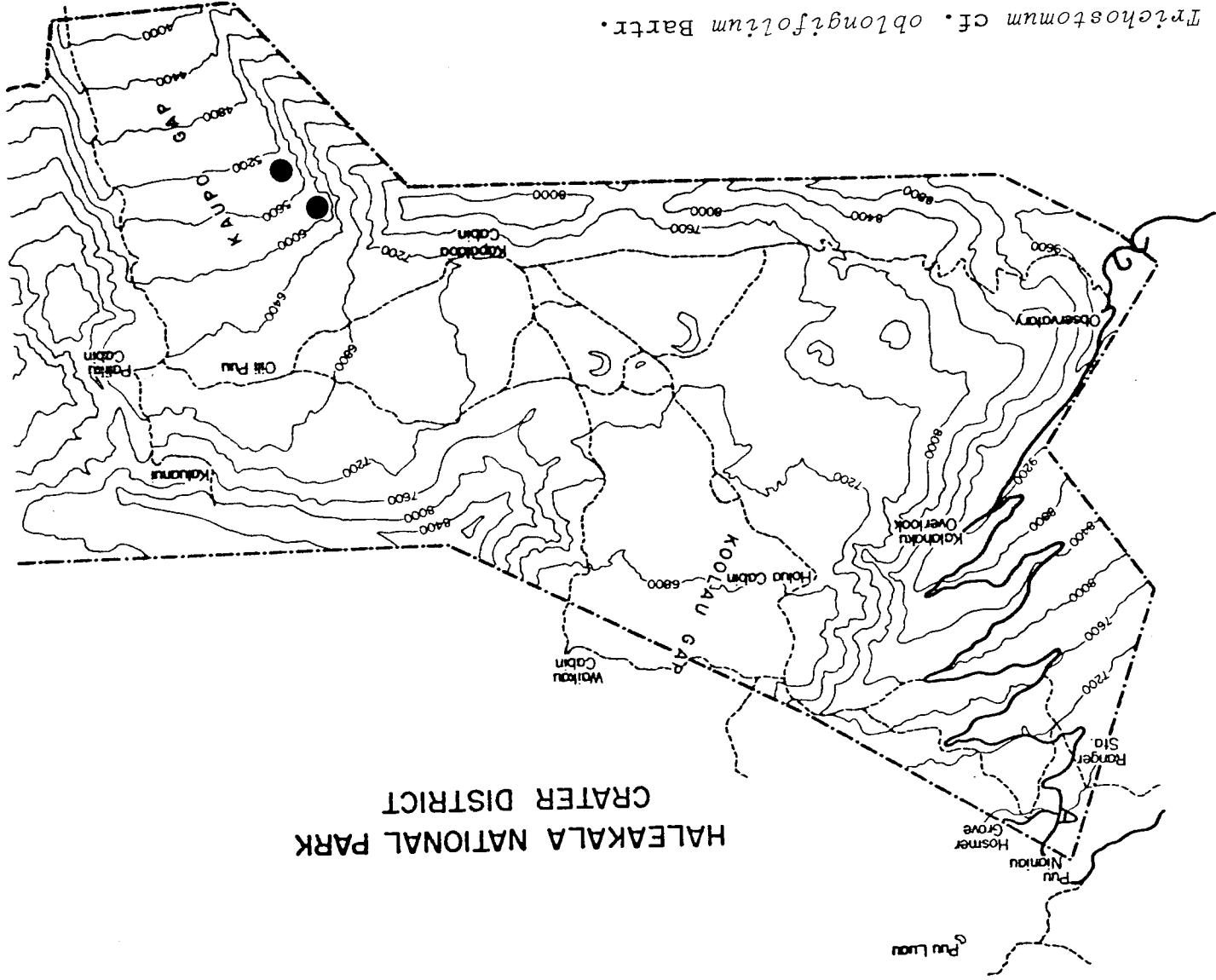


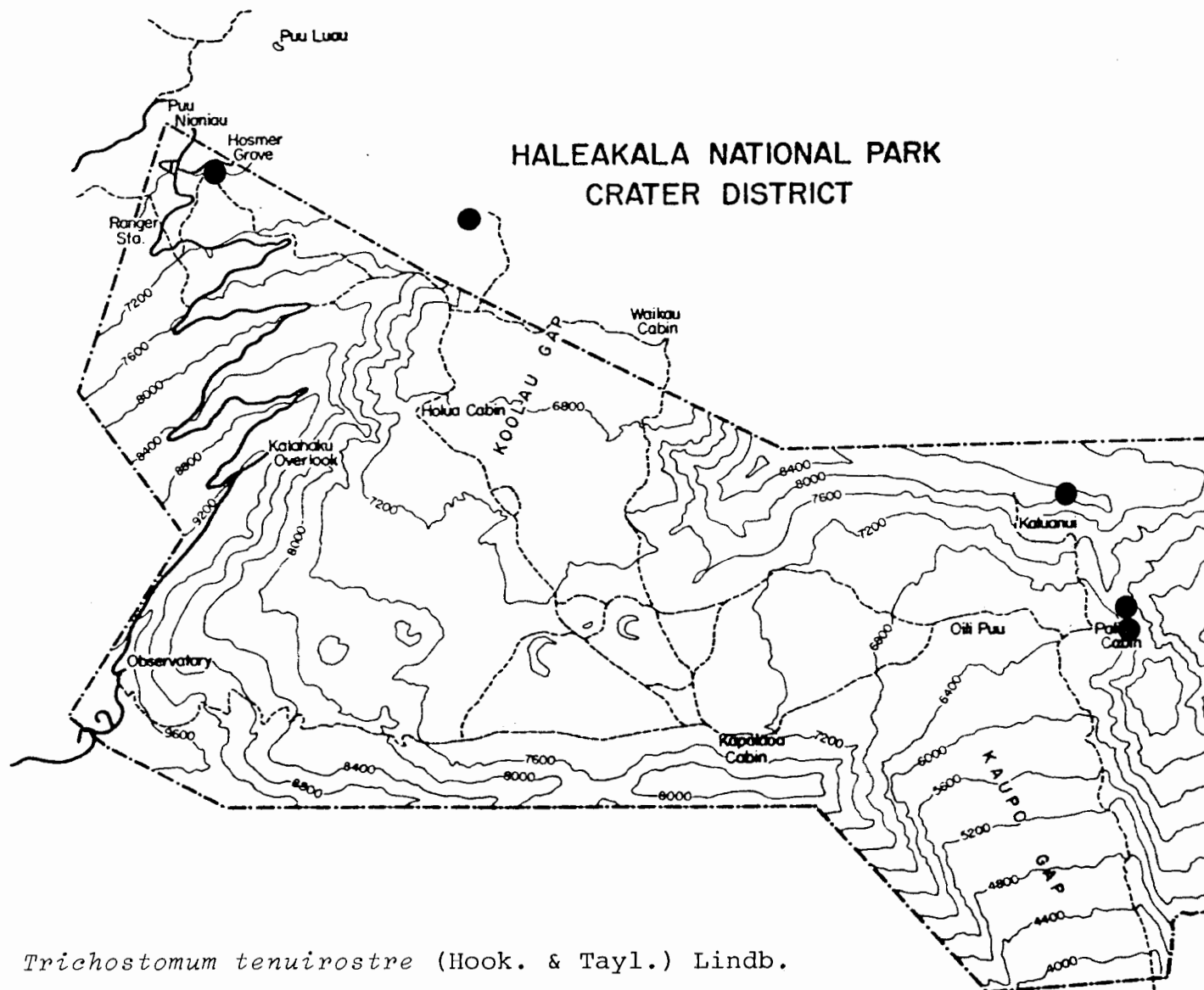
**Trematodon latinervis* C. Muell.



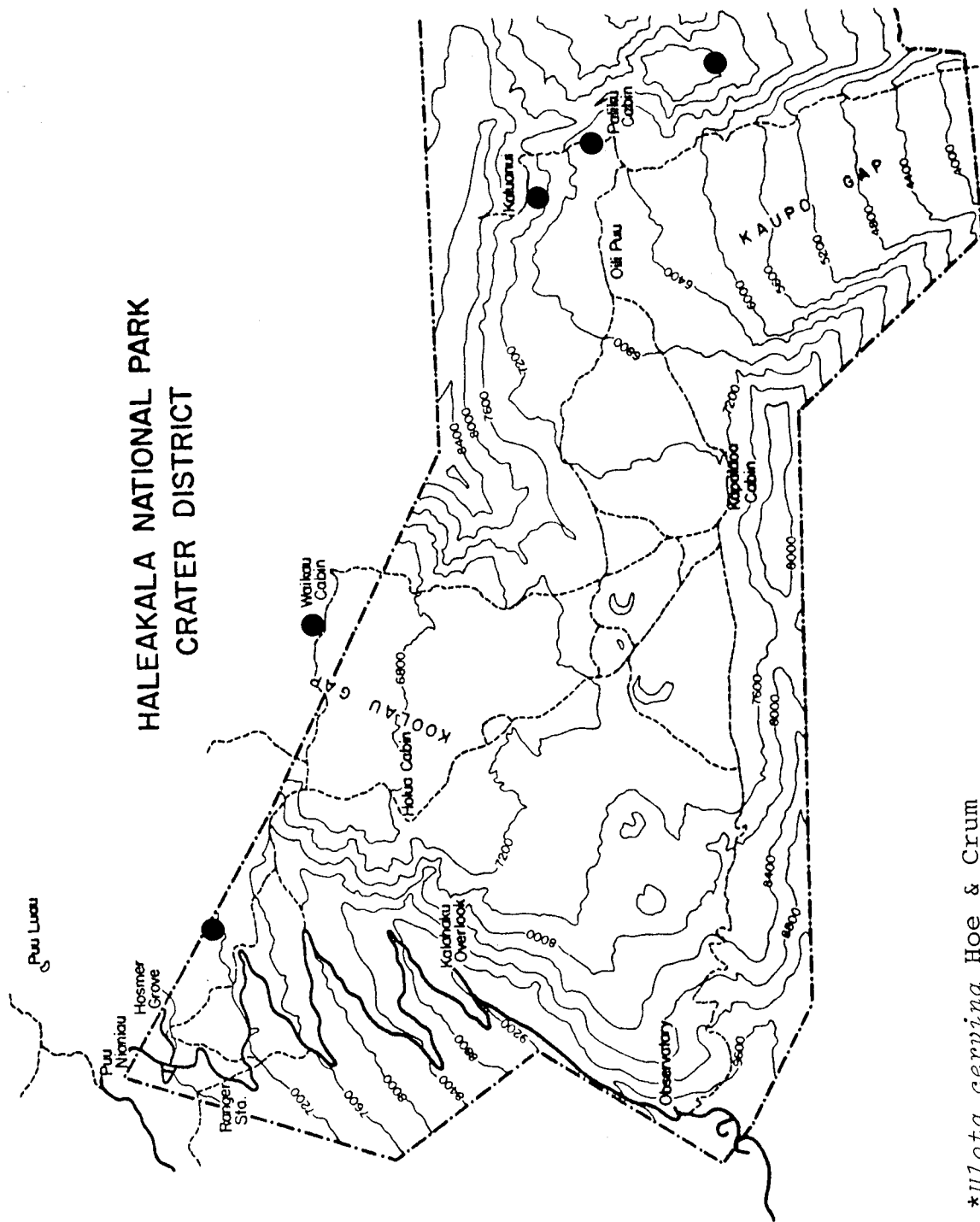
**Trichostomum bartramii* Mill.

HALEAKALA NATIONAL PARK CRATER DISTRICT





Trichostomum tenuirostre (Hook. & Tayl.) Lindb.



**Ulotu cervina* Hoe & Crum

A detailed topographic map of the Haleakala National Park Crater District. The map shows the rugged terrain of Haleakala, with numerous contour lines indicating elevations from 2000 to 9000 feet. Key features include:

- Geographic Labels:** Haleakala National Park, Crater District, Koolau, Kaupo, and various peaks like Puu Nianiau and Puu Luau.
- Trails and Routes:** Dashed lines represent trails, including the Koolau Trail and the Kaupo Trail.
- Landmarks and Facilities:**
 - Observatory:** Located near the center of the map, marked with a solid black circle.
 - Cabins:** Waikau Cabin, Koolau Cabin, and Kaupo Cabin.
 - Overlook:** Kalanidahu Overlook.
 - Other:** Hosmer Grove, Ranger Sta., and various other points of interest.
- Elevation Contours:** Labeled with values such as 2000, 3000, 4000, 5000, 6000, 7000, 8000, and 9000.

The map is oriented with North at the top. The overall shape of the park is outlined by a dashed line.

Weisia sp.

A detailed topographic map of the Haleakala National Park Crater District. The map features numerous contour lines indicating elevation, with labels such as 2000, 4000, 6000, 8000, and 9000 feet. Key locations and landmarks are marked, including:
 - **Observatory**: Located in the lower right quadrant.
 - **Kalahau Overlook**: Situated in the lower left quadrant.
 - **Ranger Sta.**: Located near the bottom left corner.
 - **Hosmer Grove**: Located near the bottom left corner.
 - **Puu Nianiau**: Located near the bottom left corner.
 - **Puu Luau**: Located near the bottom left corner.
 - **Waikou Cabin**: Located in the upper left quadrant.
 - **Holua Cabin**: Located in the upper left quadrant.
 - **Koolau**: A large area labeled in the upper left quadrant.
 - **Kalanianaʻolaha Cabin**: Located in the upper right quadrant.
 - **Oli Puu**: Located in the upper right quadrant.
 - **Poiahi Cabin**: Located in the upper right quadrant.
 - **Aupo**: A large area labeled in the upper right quadrant.
 - **G.A.P.**: A small area labeled in the upper right quadrant.
 The map also shows various trails and roads, some indicated by dashed lines. The overall shape of the park is irregular, with a dashed line defining its boundary.

**Weisia ovalis* (Williams) Bartr.

HALEAKALA NATIONAL PARK
CRATER DISTRICT

Puu Luau

Puu Nianiau

Hosmer Grove

Ranger Sta.

Kalaheku Overlook

Waikou Cabin

Koolau

Holua Cabin

Kapiolaka Cabin

Oili Puu

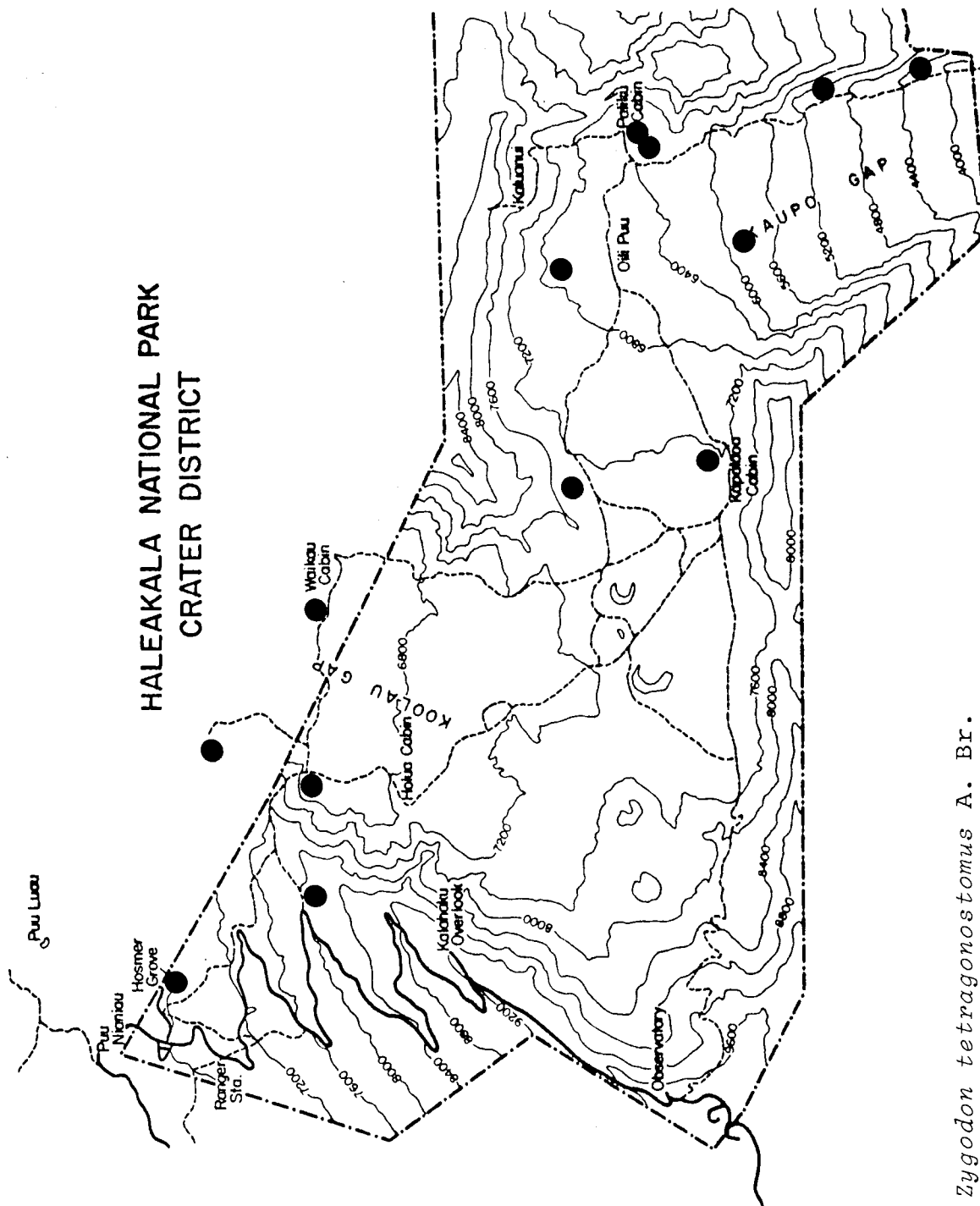
Kaula

Aupo

0 1 mile

Zygodon reinwardtii (Hornsch.) A. Br.

Zygodon reinwardtii (Hornsch.) A. Br.



Zygodon tetragonostomus A. Br.